

THE POLAR TIMES



"HIGHWAY—GREENLAND": A Painting by Rockwell Kent

ALASKA PATROL: ON THE LOOKOUT FOR THE ENEMY



A camouflaged Navy bomber over the Aleutian Islands area

(U. S. Navy)



LONELY ATTU, most westerly American outpost in the northern Pacific, points a dagger at Japan. Here's the Village of Attu (population 38 natives)



Eskimos watch crew prepare commercial flying boat for take-off at Elephant Point, Eschscholtz Bay in Kotzebue Sound. Natives who never have seen an automobile are familiar with aircraft, so great has been Alaska's development of air transport.

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Reindeer—New Eskimo Economy

Michael Tukluk copes with necessity of changing from old ways of work and life.

By Kate Archibald

The Christian Science Monitor

NOME, Alaska—Michael Tukluk, shepherding his reindeer through the long dark winter or through the endless days of summer on the Alaskan tundra, is little brother of all the people who live under the same flag of the United States. Michael knows about these big brothers, how they are at war. He hears it over the teacher's radio.

His big brothers in the States should know more about Michael and his problems. Michael's big problem, as described by one who ought to know, J. Sidney Rood, Reindeer Supervisor for Alaska, is one which is attendant upon the transition of the Eskimo from a hunting and fishing economy to a pastoral one.

Michael knows the same thing—only more realistically. He knows that, whereas his grandfathers found a plentiful supply of walrus, seal, whales and caribou, there are not enough left today to sustain him and his family.

He realizes that it is to the reindeer that he must turn for support. He has known this for several decades. But now something is happening to the reindeer. He can no longer go out on the range and round them into corrals in quantity. Wolves have gotten into the herds. Other factors, too, have tended to deplete the unprotected herds.

Michael is faced with this alternative, or starvation, that he must now go out on the range and herd the reindeer. He can no longer just go out and round them up occasionally, which, after all is much the same as hunting and fishing. He must now care for his herd, constantly, as a shepherd cares for his flock.

Jackson's Foresight

This was the word left by Sheldon Jackson who, in 1892, began the introduction of reindeer into Alaska from Siberia, that the Eskimos must become "good shepherds." When this man of vision, who was both teacher and missionary, visited the northern coast of the Territory in 1890 he found a condition of feast or famine,



Alaskan Reindeer: His Call of the Wild Has a Domestic Note

The rapid depletion of wild unprotected herds of reindeer that roam the Alaskan tundra has necessitated the introduction of herding methods to preserve these shaggy creatures of the northland. This innovation is giving the Eskimo a pastoral instead of a hunting and fishing economy.

largely famine. Game resources had been greatly depleted by white whalers and by the use of the guns which they had traded to the natives.

Mr. Jackson's purpose in bringing in reindeer was to provide a source of both food and clothing which would mean security instead of the precarious existence of fishing and hunting, a security which would depend upon the

Eskimo's care of the herds. Between the years 1892 and 1902, a total of 1,280 reindeer were imported from Siberia. The reindeer herds of today are all the increase from this breeding stock.

That was 50 years ago. As the herds increased, reindeer were distributed widely along the west coast of Alaska. Natives who expressed interest in owning reindeer were able to procure breeding stock. There was much to be

learned and the natives were taught by schoolteachers who themselves had to learn animal husbandry largely through trial and error. Private ownership, which has since been discontinued by the Government, contributed to the experience of those years.

Today the industry functions through an organization with headquarters in Nome, the Reindeer Service, which is a branch of the Office of Indian Affairs under the

Department of the Interior. The whole reindeer country of 166,000 square miles, about the size of California, is divided into six districts, known as Units.

Scattered Units

Within these Units are 41 reindeer stations scattered all the way from Kodiak Island to Point Barrow, each one under management of an Indian Service teacher.

There are 59 main reindeer ranges and approximately 4,600 native owners, Eskimo, Aleuts, and Indian, the majority of whom own shares in one or another of the 36 reindeer associations. It is estimated that about 14,000 natives, including independents, rely upon reindeer for essential skins for clothing and for meat.

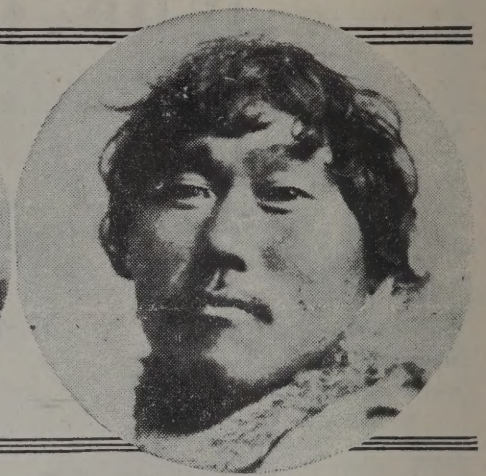
Michael Tukluk belongs to one of these associations and has held several offices in it. This activity has taught him co-operation, planning and organization. Problems of arithmetic, economics, sanitation, government, and education have all been met in his work in the association. Mr. Rood said: "Reindeer have constituted an instrumentality, not only to provide subsistence items for the native people but also to teach them fundamental problems of citizenship."

But with all this splendid organization an essential weakness has prevailed, of which Mr. Rood said: "The transition from a hunting and fishing economy to a pastoral one has been slow. Constant herding of reindeer was necessary in order to prevent loss from straying and predators, to eliminate surplus bulls, and to pro-



Eskimo Mother and Child

A more secure existence has been given Eskimos who have substituted herding for hunting and fishing as a means of livelihood.



A New Kind of Shepherd

This typical herder cares for flocks of reindeer under regulations set forth by the United States Department of the Interior.

when they were left unprotected.

During the past year Mr. Rood reports that constant herding has been practiced on such ranges as Barrow, Wainwright, Port Hope, Kivilina, Nostak, Shungnak, Buckland, Deering, Shishmaref, Cape Espenberg, Igloo and Inland.

Another and most essential benefit of this constant herding is the direction of the herds so that forage is conserved. Management of the range so as to conserve the pasture is highly important. The lichens, upon which reindeer sub-

sist between late fall and early spring, are very destructible and require from 15 to 40 years to revive after depletion.

One thing is sure, that Michael realizes he must have the reindeer. It is the only domesticated livestock with can be grazed upon the tundra and provides him with a good share of his meat. Reindeer skins, which are the lightest and warmest for Arctic winters, are used for parkas, boots, mittens, caps, pants, socks, sleeping bags, and often take the place of mattresses in native homes.

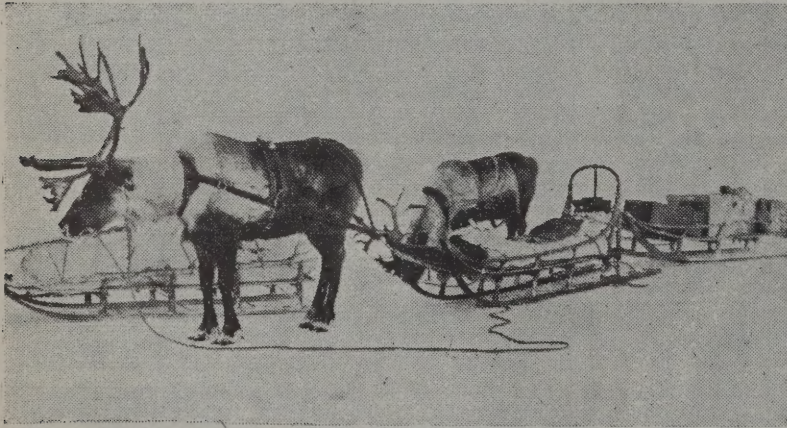
Michael is coming to see that he needs the reindeer enough to take care of them. But even then, there comes a new problem. The reindeer herder must be paid, in money, not in reindeer. Michael has acquired white

man's needs. He requires flour, milk, sugar, rice, candles, and even such luxuries as flashlights and cooking stoves.

The herder requires money, and who is to pay him? The reindeer association, if it can afford to. But with depleted stock, it is not always able to, which means that in some instances the Government must finance herders.

It all has a familiar sound. The Government is not anxious to subsidize the Eskimo and so deprive him of his independence. On the other hand, depleted reindeer stocks mean an added relief load upon the Government. The solution is to so improve the herds that surpluses for profit are provided and subsidies are no longer needed.

The need for surpluses above what the natives need is especially obvious at this time. In the Territory, where most supplies of fresh



Lomen Brothers, Office of Indian Affairs, Nome, Alaska

Above is a picture of sled deer resting after a long haul; and, right, a shepherd with a large herd of reindeer.

cure thrifty use of the forage; but it has been difficult for the natives to adjust themselves to the steady job of herding.

It is the wolves which have finally startled Michael and his kin into a realization of the need of shepherding the herds. It was in 1934 that these predators first descended upon the deer from the interior and have since found it relatively simple to destroy them



Alaska Wolf Extinction Urged to Safeguard Food for Settlers

Increasing Packs Destroy Caribou and Moose, Main Meat Supply in Territory

By Sterling K. Harrod

New York Herald Tribune
EAGLE, Alaska, April 21.—Pound for pound, nature has produced few creatures with the lethal potentialities of the Northern wolf. With a cunning that seems almost uncanny and a blood-lust virtually insatiable, this animal has no peers in the slaughter of its fellow creatures.

The wolf, usually hunting in couples or family groups, fears no other creature of the Northern wilds, although he seeks no quarrels with bears, at least not while other easier prey is to be found. Its body seems composed of spring steel and sinew, and is tireless and unbelievably fast in action, with slashing, cutting fangs and jaws which can crush the largest leg bones of the moose. As it frequently weighs more than 100 pounds, without an ounce of superfluous flesh, the wolf is something to be reckoned with.

Dog Blood in Wolves

There is no doubt a large infusion of dog blood in the wolves of Alaska, and the Yukon Territory, for of the thousands of dogs taken to those regions in the gold rushes many strayed and reverted to the wild. The wolves vary in color like dogs, although most of them are gray or black. The best sled dogs often have a strain of wolf deliberately bred in their forebears to give them stamina and hardihood.

The wolf is a prolific animal and is increasing rapidly, although in Alaska there is a \$20 bounty, in addition to the price the trapper obtains for the pelt. Their high intelligence makes them difficult to trap, and they are seldom seen at close enough range to be shot.

In open country, such as the tundra regions, where cover is scarce, it has been found possible to hunt wolves successfully from airplanes, but the bounty cannot be collected unless the skin and one foreleg are sent to the Game Commission for verification. This has confined wolf hunting by plane to the few persons wealthy enough to



PELT OF A NORTHERN KILLER—An idea of the size of a full-grown Alaska wolf is gained from this photograph

Hunting From Planes and Use of Poison Suggested to Curb Ravenous Beasts

Only a few years ago caribou roamed Alaska in such vast numbers that during the annual "runs" it often would take days for the great herds to pass a given point. The herds have been thinned out until it is now a rarity to see more than fifty or 100 in a group. There seems little doubt that the vast increase in the number of wolves is in part responsible for the disappearance of the caribou, as well as for the increasing scarcity of moose. One wolf is more than a match for a bull caribou, and a pair of wolves can readily pull down a prime bull moose.

Kill for Pure Lust

Up in the tundra country, where the reindeer are grazed, flyers often report seeing scores of carcasses of these animals which were killed by packs of wolves, sometimes apparently just for the sport, with the meat untouched.

It is unlikely that wolves could have been exterminated in the cattle country of the Western United States without the use of poison, and the most sparsely settled areas of those cattle-raising sections are populous compared to the vast uninhabited regions of Alaska. It is illegal to use poison in Alaska, lest the bait be eaten by other fur bearers, but if the poison were used by experienced government trappers this restriction could be lifted. Before the law forbidding the use of poison was rigidly enforced there were fewer wolves and many more caribou and moose, although the country was overrun with prospectors and miners who slaughtered the animals indiscriminately for use as dog food as well as for their own consumption.

It is certain that caribou and moose cannot increase rapidly enough to supply the needs of Alaskans as well as the ravenous appetites of the ever-increasing wolves. The cost of imported meat is prohibitive in most of interior Alaska, when it can be obtained at all. The only solution seems to be the eradication of the wolves.

indulge in it purely as a sport. At the last session of the Legislature in Juneau measures were instituted to make possible the payment of a double bounty for wolves killed from airplanes. It is believed that this will be of immense benefit in ridding the country of wolves.

meat must be imported by sea, reindeer meat and hides, in times of military emergencies, might well be used to help in provisioning both the military and civilian populations.

Meanwhile, these paid herders are learning valuable lessons. The following, for instance, is a part of the obligations which the herder signs upon taking his job:

I promise to work in the following ways:

1. I will herd as many reindeer as possible.
2. I will keep the deer from straying away from the herd. I will drive all strays into the herd.
3. I will try to make the reindeer tame. I will stay with the reindeer so they will get used to men. I will try to make

friends with the deer by being kind and quiet around them. I will break all the sled deer I can. I will make reindeer sleds out of spruce or birch if this wood is on the range. Lots of sled deer make a herd easier to handle.

4. I will protect the reindeer from wolves, coyotes, loose dogs or other animals. Wolves do most killing at night, so I will make plans with other herders to watch the deer all night.

5. During fawning season I will be extra careful to keep the herd quiet, safe and where there is plenty of good feed.

6. I will move the reindeer to good summer feed as early as possible and keep the deer on summer feed as long as possible. I will save valuable winter feed this way.

During fall, winter, and early

spring I will keep the deer where there is good feed. I will move deer to wind-blown places where the snow is thin and feed is good.

7. I will not keep reindeer so long in one place that the winter feed is all killed. I know the deer get hungry, wild, and hard to handle if they are kept too long in one place. I know it takes winter feed about 20 to 30 years to grow back after it is killed. I will protect the feed by rotating the herds sometimes.

Other minute instructions follow until the rules end with:

I promise not to use any kind of liquor while working for the Government, and will not allow liquor to be drunk at the herd. I will not gamble while working for the Government.

I will be clean; I will keep my clothes clean, wash my body so as to be clean, and in camp I

will keep my belongings as a good housekeeper should do.

I will take good care of my family, pay my honest debts, and treat other people as I would like to have them treat me.

The problem which concerns so vitally the welfare of Michael and all natives is serious, although not insurmountable. It is estimated that in 1932, just before the invasion of wolves, there were 600,000 reindeer in Alaska. Today there are only an estimated 205,000. But these are plenty to rebuild the stock if the herds are cared for. This need be only a temporary setback if faithful herding is practiced, before which wolves inevitably retreat.

The big thing is the continued development of the native economically and sociologically through what is his only industry, the herding, processing, and marketing of reindeer.

U. S.-ALASKA HIGHWAY SPURRED BY THE WAR

Fight for Road Renewed to Offset Japan's Submarines

WASHINGTON (Science Service)—Naval reports of Japanese submarine activity off Kodiak Island, Alaska, where our great naval air base is located, spurred Alaska's delegate, Anthony J. Dimond, to renew his request for a highway connecting the States with Alaska.

Delegate Dimond, now in Washington, said such a highway would become America's "Burma Road" enabling us to get supplies to Alaska by land rather than sea routes open to Japanese submarine attack.

Construction of an international highway through Canada to Alaska was discussed last year by President Roosevelt and Canada's Prime Minister W. L. Mackenzie King at Warm Springs, Ga. It has been under discussion for several years by representatives of both countries. Its cost is estimated at \$14,000,000 and this has held up the project to date.

"I think the failure to construct this highway, now so desperately needed, is appalling—and you can quote me," Mr. Dimond said.

He pointed out that Alaska was not self-supporting and depended on sea traffic for her food and supplies. If sea routes are made too hazardous by Japanese attacks Alaska may be seriously threatened. An Alaska-United States highway, however, would not be open to attack, he said.

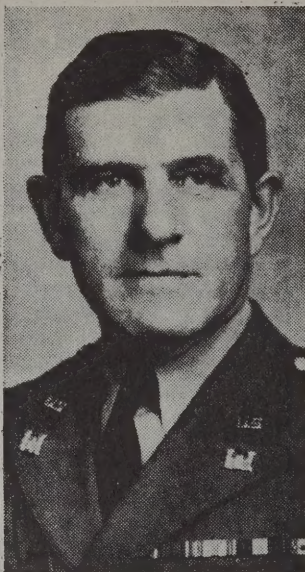
WASHINGTON, Feb. 4 (U.P.)—Governor Gruening of Alaska today urged construction of the proposed highway to Alaska by way of Northwestern Canada "at the earliest possible moment" as both a military and economic measure. Mr. Gruening, testifying before the House Roads Committee in support of a bill to authorize \$25,000,000 for the highway, said that there already had been difficulty in shipping civilian supplies by sea.

WASHINGTON, Feb. 6—Formal War Department approval of the proposed \$25,000,000 International Alaska Highway was given to the House Roads Committee today through Colonel James K. Tully of the General Staff.

"The military and naval situation in the Pacific," the department asserted, "now indicates that a land route alternative to the existing sea routes is desirable from the viewpoint of national defense."

Before the committee was a measure sponsored by Anthony J. Dimond, Delegate from Alaska, to authorize the construction of a road through Northwestern Canada to link the Canadian and American routes with the Richardson Highway of Alaska.

EDMONTON, Alta., Feb. 19 (A.P.)—A United States Army commission



Col. William M. Hoge

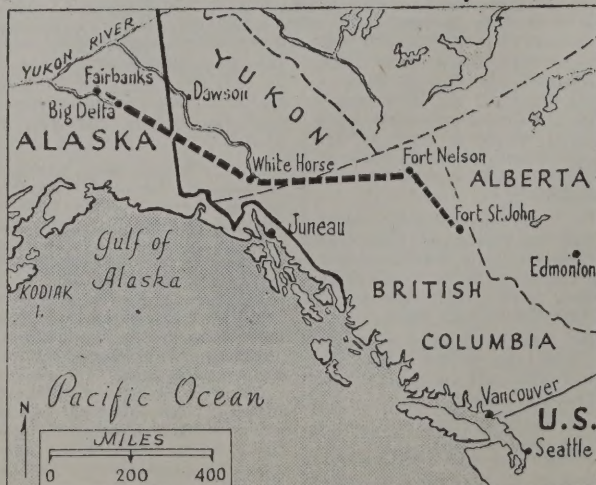
Of the United States Army Engineers who is in charge of the construction of the Alaska Highway.

headed by Colonel W. M. Hoge, of the Corps of Engineers, arrived here today on a trip to the North to study the proposed route of an inland highway to Alaska.

"The commission," he said, "is here to study the route from Edmonton through Grande Prairie, Fort St. John, Fort Nelson, Whitehorse and into Alaska." Recommendations will be sent to Washington.

OTTAWA, Ont., March 6—Construction by the United States of a highway through Canada to Alaska has been approved by both governments, Prime Minister W. L. Mackenzie King told the House of Commons today, and engineers have been authorized to survey and lay out a pioneer road without delay.

The action was taken, he said, upon a unanimous recommendation



Broken line indicates route of highway to be built from Fort St. John to Fairbanks, which will complete the linking of United States and Alaska by motor road

Alaska Route Was Set Inland As Airfield Tie

WASHINGTON, March 13 (A.P.)—Military requirements, particularly the need for a highway supply route to airfields already built, indicated the choice of a far-inland route for the Alaska highway, a War Department official said today.

This chain of airfields through northern British Columbia and the Yukon Territory forms a link with air routes of Alaska, and—protected by the barrier of two great mountain ranges—is usable by planes the year round, even in the coldest weather.

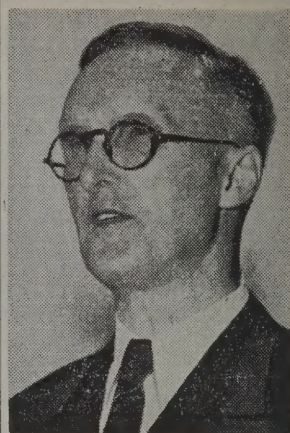
Supplies for many of these fields have had to be brought in chiefly by air. The advantages of a highway linking them finally outweighed other factors involved in selecting a route, officials said.

Under agreement between the United States and Canada, the Army engineers will make the extensive surveys required, stake out the location of the highway for all of its more than 1,500 miles, and build a pioneer road.

To boss the job of mapping the route and building the pioneer road through territory, the Army engineers assigned Colonel William M. Hoge, a forty-eight-year-old Missouri-born engineer.

Experienced in construction work through many assignments on river and harbor details in this country, he also has a distinguished record as a combat and as an administrative officer. In addition to the Silver Star, for gallantry in action, he was decorated with the Distinguished Service Cross for heroism during the Meuse-Argonne offensive, in the World War.

made Feb. 26 by the Permanent Joint Board on Defense. He added that the route, based on military considerations and connecting existent road systems, would start at Fort St. John in Northern British Columbia and follow the general line of airports set up by Canada through Fort Nelson, Watson Lake, White Horse, Boundary and Big



ANTHONY J. DIMOND
Alaskan delegate to Congress

Delta to Fairbanks.

Appreciating the burden of war expenditure already incurred by Canada, Mr. King said, the United States would not only build the highway but would also maintain it until the end of the war when that part which is in the Dominion would become an integral part of the Canadian highway system.

U. S. WILL MAINTAIN ALASKAN HIGHWAY

Agreement Permits Extension for 6 Months After War

WASHINGTON, March 18—The United States will build and maintain during the war and for six months thereafter, if desired, the military highway through Canada to Alaska, according to detailed arrangements set forth in an exchange of notes made public by the State Department today.

The notes were exchanged yesterday and today between Pierrepoint Moffat, Minister to Canada, and W. L. Mackenzie King, Prime Minister of Canada.

The agreement follows recommendations of the Permanent Joint Board on Defense of the United States and Canada which were accepted by Canada on March 6. United States Army engineers are now making detailed surveys of the route which follow the general line of Fort St. John, Fort Nelson, Watson Lake, Whitehorse, Boundary and Big Delta.

Under the agreement the United States will survey and build the road, maintain it during the war emergency, and then turn the part that lies in Canada over to the Dominion on condition that there shall be no discrimination in its use as between Canadian and United States civilian traffic.

Canada will acquire rights of way, waive duties, fees and other standard charges incident to the construction, and make timber, gravel and rock available to the constructors.

Alaska's Cost 75 Years Ago No 'Folly' Now

**Its Natural Wealth Alone
Has Repaid \$7,200,000
Price 200 Times Over**

By John E. Bierck

Alaska's strategic advantages to the United States in the war with Japan have become obvious to all, and official figures available long before the attack on Pearl Harbor showed that the territory has returned in fish, minerals, furs, lumber and other products about 200 times the \$7,200,000 for which the United States bought it from Russia under a treaty signed in Washington seventy-five years ago March 30. But at the time of the acquisition the purchase price, less than two cents an acre for a land with an area of 590,884 square miles, more than twice the size of Texas, was widely regarded in this country as a waste of money.

Then and for years afterward the purchase, negotiated by William H. Seward, Secretary of State, was called "Seward's folly," even though what had been designated before the sale as Russian America was vaguely known to be rich in fish and furs at least. The reason was that Alaska figured in the popular mind, when it figured at all, only in terms of ice and polar bears.

Broke Up Whist Game

When the purchase treaty was signed on March 30, 1867, the time was 4 a. m. The most generally accepted story to account for this hour, seldom associated with diplomacy, is that Secretary Seward was in a whist game at his Washington home when on the evening of March 29 the Russian Minister called to say that he had just received permission from his government to make the sale. The minister suggested that the treaty be drawn up the next day, but Secretary Seward wished to begin work at once, quit his whist game and accompanied the minister to the State Department, whither other American and Russian officials were summoned for a session that lasted until an unconventional hour.

Gold Discovered in '96

The Senate ratified the treaty on May 28, 1867, and Alaska was formally transferred to the United States at Sitka on the following Oct. 18.

For twenty-nine years after 1867 the public was pathetic toward Alaska and then, on Aug. 16, 1896, gold was discovered on Bonanza Creek in the adjacent Klondike region of Canada. A great rush of prospectors and adventurers through Chilkoot and White Horse Passes followed, continued for two years and



became legendary. From the Klondike the prospecting spread into Alaska. Some of it was productive and placed the territory in the limelight for several years. Then public interest lapsed. Indeed, until the United States entered the present war Alaska was largely associated in the popular mind with little more than glaciers, summer cruises, big-game hunting, Rex Beach novels, Robert W. Service's "Dangerous Dan McGrew" and the 665-mile dash to Nome with diphtheria serum made through a blizzard in 1925 by Leonard Seppaja, Gunnar Kasson and their dog teams, which included the famous Togo.

Today the war has given to the territory a boom exceeding even that of the gold rush. The building of Army and Navy bases, roads including the Alaskan highway from western Canada, and airports has added thousands to the population, which was 72,524 in 1940.

The Aleutian Islands, some eighty in number, which extend westward

from the Alaska Peninsula for about 1,200 miles into the Pacific, are like stepping stones toward Japan. They are hundreds of miles nearer the Japanese archipelago than Hawaii, America's nearest remaining Pacific bastion. From Attu, westernmost of the Aleutians, the distance to Tokyo is only 1,750 miles. To Paramushir, most northerly of the larger islands of Japan, where there is a naval base, the distance is a mere 700 miles.

Kodiak Island and the adjacent mainland are, incidentally, the home of the Kodiak brown bear, largest of the bear family. Despite the territory's rigidly enforced game laws, these giant beasts have been decreasing in numbers in recent years.

Though the total paid by the United States to Russia for Alaska was \$7,200,000, the actual price was \$1,400,000, the \$5,800,000 balance having been for Russia's naval demonstration in United States waters at a time in the Civil War when Great Britain and France favored the Confederacy and the Washington government needed friends.

EXPLORE ALASKA BY PLANE

**Geographers Do Three Months
Job in Three Weeks**

WASHINGTON (Science Service)—Using airplanes a geographic expedition explored, photographed and mapped a vital part of the Alaskan defense area in the region of Mount Hayes last Summer in a fourth of the time and at a third of the cost that would have been required by older methods. At the meeting of the American Geophysical Union here, Dr. Bradford Washburn of the New England Museum of Natural History, leader of the party, told how the work was done, and showed color motion pictures of the beauty-spots of the country traversed.

Dr. Washburn took his party in by leased planes with parachutes loaned by the Army. All supplies were parachuted to the men on the ground and two-way radio communication was constantly maintained with the main base. Work that would have required three months by former methods was finished in three weeks.

Road to Alaska Speeded

EDMONTON, Alta., April 4 (CP).—A United States Army Medical Corps officer said here today that the engineer troops assigned to the Alaska highway project had won the race against the spring thaws and now had all equipment on the north end of the "bad stretch" between Fort St. John and Fort Nelson, in British Columbia. This officer returned here with four hospital cases.

EDMONTON, Alberta, June 5 (CP).—Equipped with some of the finest roadbuilding machinery ever to come out of the United States, the United States corps of engineers is smashing through the "pioneer" road to Alaska at a rapid

rate, it was learned here.

The initial engineer camp in northern British Columbia has been moved ahead several miles to keep pace with the "bulldozers" and other equipment which is "busting through" in an attempt to reach the destination by fall.

The engineer forces now are traveling through some of the wildest country on the North American continent, inhabited only by wild animals and an occasional band of Indians.

With no contact with the outside world except by airplane, the engineer forces are living on dehydrated vegetables and fruit and canned meat.

Radio Beams Lead Fliers to Alaska

EDMONTON, Alberta, Jan. 8 (CP).—Radio beams are in operation along the air route from Edmonton to Alaska, enabling commercial and military aircraft to fly over the route in all kinds of weather, it has been learned here.

It was announced in Ottawa last month work was being rushed to install all the beams within a short time. With war in the Pacific, this air route has assumed great importance, especially for aircraft from the United States to fly through Canada to Alaska "behind the Rocky Mountains."

Dutch Harbor Is Target

WASHINGTON, June 3.—Japan brought aerial warfare to North America for the first time in history today when it sent two waves of planes—in attacks launched six hours apart—against the strong naval aviation base at Dutch Harbor, Alaska, near the eastern end of the Aleutian Islands chain.

Four bombers, escorted by fifteen fighter planes, took part in the first onslaught on the lonely outpost, situated on tiny Amaknak Island in a deep inlet of the northern shore of much larger Unalaska Island. That fleet of planes began its work at 6 o'clock in the morning Alaska time (noon New York war time) and vanished fifteen minutes later after inflicting "few casualties" and "no serious damage," although it did succeed in setting a few warehouses afire.

Just six hours later enemy planes attacked Dutch Harbor for the second time.

The second wave of enemy planes failed to drop any bombs and appears to have been engaged solely in reconnaissance. The source of the attacking aircraft has not been definitely determined, but they are thought to have been carrier-based.

Was Just Trading Post

It was the Geographic Society which said that Dutch Harbor is actually on Amaknak Island, instead of on Unalaska Island, commonly accepted as the site. As to its history, the society said:

"Dutch Harbor, which until fairly recently was only a village with a trading post, a fuel oil depot and a radio naval station, received its name because of the tradition that it was a Dutch ship which first entered its bay. Russian navigators, however, early came this way. They knew the then busy fur-sealing center by its native Eskimo name of Udakta. Later the harbor became one of the way stations for vessels making for the gold rush regions of the Yukon and Nome.

"Dutch Harbor is a mile and three-quarters long by half a mile in width. The water is deep near the shores and in most parts of the harbor. Violent gales are occasionally known in these waters, when mariners are warned to look out for williwaws (sudden gusts of cold land air, common along mountainous coasts of high latitudes)."

Unalaska is one of the larger Fox Islands which form the eastern group of the Aleutian chain. It is about sixty-seven miles long, and the Town of Unalaska is the largest settlement in the Aleutians. Unalaska Bay opens into Bering Sea between two capes on the northern side of the island. Eastward of the island are the harbors and anchorages of Iluluk Bay and Dutch Harbor.

Dutch Harbor is 601 nautical miles from Kodiak; 665 miles from Nome; 1,112 miles from Juneau; 1,707 miles from Seattle; 2,051 miles from San Francisco, and 2,547 miles from Yokohama. The climate there is no bargain for it rains hard day in and day out, the rain lashing in from the Bering Sea.

ABORIGINAL INVADERS OF NORTH AMERICA

Athapascans Reached Alaska From Asia, Scientist Finds

The last great aboriginal invasion of North America probably preceded the Christian era by only a short time, writes Dr. Diamond Jenness of the National Museum of Canada in a paper which forms part of the latest annual report of the Smithsonian Institution.

These invaders were the Athapascans. They brought with them, it is probable, the bow and arrow, the snowshoe and the toboggan, prominent elements of Indian culture in historic times. They crossed from Asia into Alaska and slowly moved southward along two routes—one west of the Rockies and one down the valley of the Mackenzie River.

Only about a thousand years ago their advance columns reached the southwestern portion of the United States, where they caused a major disruption in the settled ways of life of the agricultural Pueblo Indians. The descendants of this vanguard constitute the Navahoes of today.

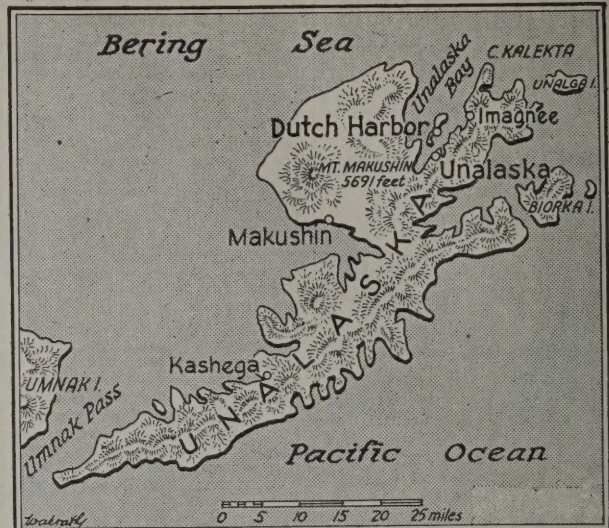
Although much of this reconstruction from scattered archaeological remains and from linguistic

evidence remains highly theoretical, Dr. Jenness says, the picture has been taking more definite form from discoveries during the last few years.

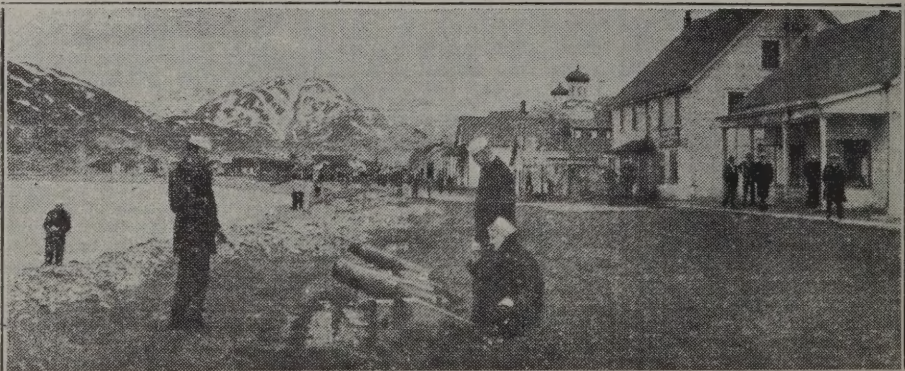
No Ice Igloos in Alaska

PORTLAND, Ore. (UP)—Contrary to common belief, virtually no igloos are built of ice in Alaska. Amos Burg, Portland explorer, re-

turned home after living a month with the Eskimos and reported that igloos are in reality holes dug in the frozen ground and covered with brush, driftwood and tundra sod. "The much cartooned ice igloos," he explained, "are found further east in King William Land and Greenland." Burg covered 6,000 miles on his Alaska trip, and took 20,000 feet of motion picture film for educational pictures.



A general view of Dutch Harbor on the island of Unalaska, one of the largest of the Aleutian chain.



American sailors inspect old Russian cannon at Dutch Harbor

ALEUTIAN ISLANDS BEING FORTIFIED

United States Outposts South
and West of Alaska
Point Toward Asia

The Aleutian Islands south and west of Alaska, where United States defense works are being rushed to completion and which may be a springboard for the coming offensive against Japan, extend within about 750 miles of Japan's northern Kurile Islands.

"Remote as the Aleutian Islands seem to many people in this country, the normal Great Circle steamer route between northwestern United States ports and Japan passes only about 200 miles south of the long, curving chain," points out a bulletin from the National Geographic Society.

"One of the Aleutians, Unalaska Island, where a new United States naval station and air base are being established, lies about 2,000 miles from San Francisco and the same distance from Honolulu. The western third of the 1,500-mile-long archipelago extends beyond the 180th Meridian, the imaginary dividing line which is the International Date Line. But a westward angle arbitrarily puts all the Aleutians east of the Date Line.

Sort of Wagnerian World

"The Aleutians form a sort of Wagnerian world of their own, with volcanoes puffing huge steam rings, with islets popping out of the sea and vanishing again as mysteriously, and with fog-chilled winds howling over grassy moors.

"Of the hundreds of volcanic islands, many are mere surf- and wind-scoured rocks. Largest is Unimak Island, which measures sixty-five by twenty-two miles. Unimak also has the highest peak—the symmetrical 9,387-foot Shishaldin volcano.

"Most of the islands are bold and rocky. Not a tree grows in the group; natives depend on driftwood and animal oils for fuel. There is verdant growth of grasses and flowering plants, however, and on Umnak Island an American operates a sheep ranch with about 15,000 head.

"Average annual temperatures are remarkably uniform in the Aleutians, seldom dropping below freezing in winter and rarely reaching 60 degrees in summer, due to the warm Japan current. Fogs and gales are regular fare. The warm air from the Japan current mixing with the cold air of Bering Sea, makes the Aleutians a 'northern weather-kitchen' which brews storms that affect the climate of the United States.

"Most important and one of the largest of the Aleutians is Unalaska, near the east end of the chain. In Dutch Harbor, on the shore of a tiny island in Unalaska Bay, the United States is constructing defense works vital to the protection of the northwestern approaches to North America.

"West of Unalaska is Bogoslof

Island, famous for its jack-in-the-box antics. Its volcanic peaks and outlying islets have appeared and disappeared time and again, particularly between 1900 and 1907.

Large Whaling Station

"Akutan, also in the Eastern Aleutians, assaults one's nostrils before it is seen; it has a big whaling station. In good seasons as many as 200 whales were taken by Akutan boats. Westward from Umnak Island lie the islands of the Four Mountains and the long Andreanof chain. Almost uninhabited, the islands continue for 500 miles to Attu, westernmost of the American Aleutians.

"A few whites trade in the Aleutians, run fisheries and whaling stations, and breed foxes, especially the blue variety. Fishing, hunting, and trapping occupy the few hundred natives, who are descendants of the once-numerous Aleut people."

SEALS' EATING HABITS STUDIED BY EXPERTS

Herd Is Watched at Seattle Zoo
by Federal Scientists

SEATTLE, Wash. (UP)—Before the watchful eyes of scientists from the United States Fish and Wildlife Service and the University of Washington, a herd of seven seals are the main actors in a bit of biological research.

The "guinea pigs" were brought to Seattle's Woodland Park zoo from the rocky coast of St. Paul Island in the Pribiloff group, home of thousands of fur seals off the Alaskan coast. The purpose of the experiment—the first of its kind in history—is to determine the eating habits of the seals.

The investigators would like to know the amounts and kind of fish the seals consume, the idea being to find out what effect seal appetites have on Pacific coast fisheries.

Another thing they would like to discover is just how much fish a seal can gulp down in the course of a day—something which science so far has never determined.

Last year the Federal biologists tagged 10,000 Pribiloff seals in an attempt to study their migrations during the months they are absent from their birthplaces. This work went for nothing because scientists cannot roam the sea in boats looking for tagged seals while a war is being fought in the Pacific.

GIANT SLOTH BONE FOUND

Uncovered in Frozen Soil of
Alaskan Area

BERKELEY, Calif. (Science Service)—A single bone of a giant ground sloth found in the frozen soil of Alaska, on Cripple Creek near Fairbanks, is reported in a recent issue of Science by Professor Chester Stock, paleontologist of the University of California.

These great, lumbering, stupid beasts, whose much smaller rela-

ALASKA IS BUSY ON DEFENSE PLANS

Thousands of Workers Migrate
There to Build New Army
and Navy Bases

The Japanese threat to the Pacific Coast has put the coast of Alaska, with its many inlets and harbors, in the blackout region of possible attack.

Meanwhile new Navy and Army bases, highways and airfields have brought in thousands of people and the population of Alaska, with one-fifth the area of the United States, is expected to pass the 80,000 mark. The 1940 census listed 72,524 persons. Juneau, the capital, Anchorage and other cities are expecting to double their populations, according to a National Geographic Society bulletin, which describes the territory:

"So deeply indented is the shore that, with its many bordering islands, it has an estimated coast line of 25,000 miles. For all practical purposes a thin strip along the coast, especially the southern part, was for more than a century Alaska, or Russian America. The Russians maintained government headquarters at Sitka, on the west coast of Baranof Island, a little over 1,000 miles from Seattle.

Yukon a Mighty River

"The interior remained unexplored. Settlements rose where rivers met the sea. The Yukon, greatest of these river highways, flows 2,100 miles westward, across Alaska from Canada. Several of its tributaries are navigable by steamer for 100 to 750 miles each, making the Yukon a vast transportation system during the Summer months.

"In 1942 occurs the seventy-fifth anniversary of the Alaska Purchase, by which William H. Seward, Secretary of State under President Johnson, created a memorial to himself long known as 'Seward's Folly.' The territory was bought for \$7,200,000.

"Alaska's 600,000 square miles

tives are now found only in tropical jungle tree-tops, had left previously discovered remains all the way from Mexico to the state of Washington; but the new specimen, now the property of the American Museum of Natural History in New York, is the first ever found so far north. It may cast new light on the climatic conditions in Alaska during the pleistocene Ice Age, when it shared with giant bison, mastodon, humpless camel and other extinct animals the dominance of North America.

The bone seems to belong to a species of the ground sloth first studied by the scholar-president, Thomas Jefferson, and named Megalonyx, which means "big claw." Ground sloths did have huge claws, but were harmless plant-eaters for all that.

thus cost less than two cents an acre. The 'folly' has returned in gold, salmon, furs, lumber and other products about two hundred times the purchase price.

"The famous Klondike area, on the Canadian side of the boundary, was the scene of the frenzied gold rush of 1897-8. It did not reach peak production of \$22,000,000 worth of gold until 1900. Without sensational headlines, Alaska in 1940 reported an all-time high in gold production of over \$26,000,000.

Other Mineral Wealth

"In 1938 Alaska mined some \$3,000,000 worth of copper, over \$1,000,000 in platinum metals (platinum, iridium, osmium, ruthenium, rhodium and palladium), with lesser values in silver, lead, tin and coal.

"Alaska's copper mines to date have yielded a total in excess of \$225,000,000, but known deposits are about exhausted. Alaska has abundant water power. Fifty hydroelectric plants now are in operation.

"The real 'pay dirt' of Alaska comes from the rivers. Salmon is the most valuable single product. Each year the value of canned salmon exported has been from \$35,000,000 to \$50,000,000 a year, with some \$5,000,000 in other fish and fish products.

"Because of the inadequacy of surface transportation over such a vast territory, aviation developed rapidly and now is referred to as Alaska's taxi service. There are 155 airfield in Alaska and passenger miles flown reach 8,000,000 each year."

Civilian Travel to Alaska Put Under Strict Control

By the Associated Press.

SAN FRANCISCO, June 30. Strict military control over all civilian travel to and from Alaska will be established by the Army, effective July 11.

A military pass will be required for any civilian entering or leaving the territory, under the first such order involving the Pacific area.

Lt. Gen. J. L. De Witt, head of the Western Defense Command, 4th Army, and Alaska Defense Command, announced six reasons would be accepted for granting permits: Official business of the United States Government, definitely-arranged legitimate employment, business reasons, return of bona fide Alaska residents to their homes, close domestic relationship and school interests.

Passes may be obtained through the Alaska Travel Control, a new agency created by Gen. De Witt, with offices in the Exchange Building, Seattle, Wash.

Every applicant will be carefully investigated, Gen. De Witt said. He will be photographed, fingerprinted, and must supply a complete statement of his personal history.

Trout a 'Pest' in Alaska

Trout are sport fish in most localities, but in Alaska they are considered a pest because they destroy salmon eggs, reports The Associated Press.

FOE WINS TOEHOLD IN THE ALEUTIANS

WASHINGTON, June 12—The Japanese have made small landings on islands of the western tip of the Aleutian Islands and naval and air operations against them are in progress, the Navy Department announced tonight.

Landings have been made by the Japanese on Attu Island and Japanese ships have been reported in Kiska Harbor of the Rat group, near the tip of the archipelago and far west of Dutch Harbor.

The Navy Department did not state when the landings had been made, but the official announcement was taken to mean that they had not been discovered until yesterday.

The Navy has stressed in recent days that most of the far western islands of the Aleutian Archipelago are uninhabited and steep, rocky declivities unsuited for military bases.

Attu lies 800 miles to the west, a barren area of 700 square miles with mountains 3,000 feet high and a treacherous coastline of rocks and reefs. A radio station is maintained there by the Territory of Alaska. Normally the population is less than seventy-five.

On the other hand, Kiska Harbor is potentially one of the best in the Aleutians, and, if developed, could hold a great fleet. Therefore it is of importance on the route to Asia. United States naval planes have utilized it as an observation point. From the shore, rocky mountains rise to over 4,000 feet.

U. S. Removes Natives

JUNEAU, Alaska, June 26 (AP).—Evacuation of 550 natives from the Pribilofs and from Atka Island was reported in a dispatch released for publication by Navy and Army authorities today.

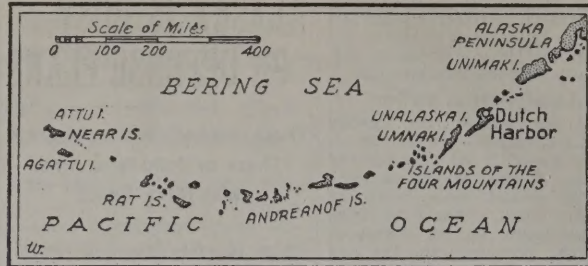
The evacuees were taken, under orders, to an old cannery at Funter Bay, Admiralty Island, and to an abandoned saltery at Killisnoo, in the Alexander Archipelago, both in southern Alaska. Most of them were from the Pribilof Islands.

The Pribilofs, a Bering Sea group, are often called "the fur seal islands" because of the immense herds, estimated in recent years at 1,500,000, which annually migrate to the rookeries there.

Atka is one of the larger of the westernmost Aleutian Islands. It is midway between Dutch Harbor and Kiska Island.

Emergency Supplies Are Flown to Alaska

EDMONTON, Alberta (AP).—Loaded with supplies and equipment from the United States, two planes roared north from Edmonton April 21 for Nome, Alaska, to replace supplies lost April 20 by fire which destroyed the Nome Hospital.



Stefansson Asserts Japan Knows Aleutians Better Than U.S. Does

By Vilhjalmur Stefansson
Arctic Explorer and Scientist

According to dispatches, Japan is trying to invade the Aleutian Islands, or trying to invade North America by way of the Aleutians. Even in these days of military secrecy we can safely write and talk about that; for few anywhere, and nobody in Alaska, doubt that the Japanese know more about the Aleutians than we do.

During nearly a hundred years prior to four years ago, those who knew how little we knew about the Aleutians considered it a national reproach. In the 1850's William Henry Seward, not yet Secretary of State but only a Senator, was telling us in his speeches that because of our great whaling industry, and for reasons of national pride, we ought to map and study the Aleutian and northern Japanese islands, Bering Sea and Strait, and the whaling region to the north of the Strait. But not even our purchase, which Seward put through in 1867, resulted in any material improvement. Scientists like William H. Dall came back with fragments of information, the whaling skippers sent in their notes to Washington, the most northward looking of our government services, the Coast Guard, contributed materially every now and then. But the net total of increased knowledge was small.

Three or four years ago we began to forsee the war which is now upon us, and there began a period of surveying activity and of military secrecy. The Coast Guard, no doubt, has been adding materially during this time to its knowledge, which was already the best we had; and there has been valiant service by the

Coast and Geodetic Survey and by other agencies. The Navy, which includes the Coast Guard only in time of war, also took a hand. But even last year and this year, and even within the Coast Guard, it has been a usual remark that not the most experienced of their officers had such knowledge of deeps and shoals, of reefs and clear passageways, around the Aleutians as do the Japanese. This superiority of Japanese knowledge is considered by the average Alaskan to extend eastward through the whole Aleutian chain all the way to our salmon-fishing and canning paradise of Bristol Bay.

For just as many New Yorkers think that the average Japanese butler on Park Avenue was really an army or navy officer serving his country so do the Alaskans believe that most of the Japanese fishing boats, in Aleutian and the other Alaska waters, were there in the main for taking soundings and bearings, for studying the relief of mountain and valley—in short, to get ready for the struggle which they felt was inevitable and which we thought would never come.

A factor in the struggle around Attu, Kiska and Dutch Harbor is the climate. It is a commonplace, in meteorology that you get the foggiest weather and stormy weather where cold and warm ocean waters meet. In this region the sideswiping of warm and cold streams produces through fog nearly the equivalent of a permanent smoke screen. To aviation fog is an advantage only if you want to make concealed flights to attack the enemy. If, instead, you are trying to use your scouting and bombing planes to prevent the land-

ing of troops you are at a great disadvantage.

True, the fog does handicap the invaders, too. But in the heyday of Yankee whaling, in this very region, it was a main dependence of the skipper to sail by his lead. He could tell much about his position by getting the depth of the water, its temperature, its mud and vegetable content, the trend of its current. He could even steer his vessel through a thick fog among precipitous cliffs by blosing the foghorn and listening for the echo. This is just the sort of knowledge we believe the Japanese have been accumulating steadily these thirty and forty years, since their war with Russia,

SAYS JAPANESE TOOK PHOTOS IN ALEUTIANS

*Former Resident Tells of Visitors
to Atka Island in 1930*

SEATTLE, June 21 (AP)—How a number of Japanese spent a day photographing one of the Aleutian Islands twelve years ago has been recalled by Mrs. R. H. Milne, who, with her husband, daughter and a school teacher, were the only white persons then on Atka Island, 375 miles west of Dutch Harbor.

Mr. Milne was manager of the Kanaga Ranching Company, a trading post on Atka Island, in 1929-30.

"A Japanese boat, which was assertedly from their 'Bureau of Fisheries,' visited Atka once," Mrs. Milne said. "The captain told us that most of his crew were 'botany students' and that they wanted to go ashore to study the 'vegetation.'"

"This was an obvious lie. All the 'botany students' carried cameras—perhaps to photograph the coarse grass which was about all the vegetation Atka boasted. They were ashore all day."

The trading post was equipped with a radio by which, in an emergency, Mr. Milne could reach the Coast Guard.

"It may have been a coincidence," Mrs. Milne declared, "but after our Japanese visitors departed we found we could no longer contact the outside world with that radio."

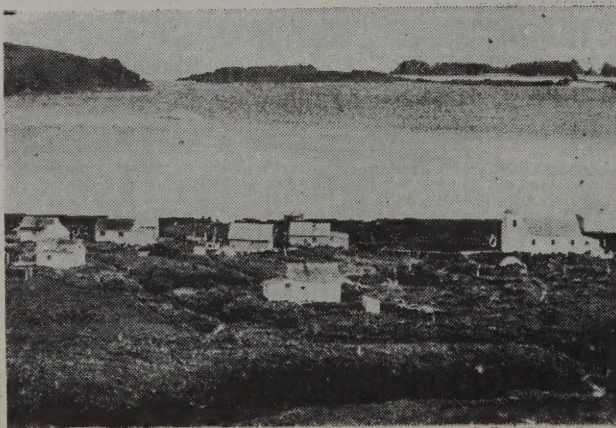
Alaskan Natives Use Traps For Shells to Kill Japs

JUNEAU, Alaska, (AP)—Returning from a tour of 54 native schools in all sections of the territory, George A. Dale, associate supervisor of education for the Office of Indian Affairs, reports the natives are reviving their ancient fishing and hunting arts in order to conserve ammunition.

Wherever possible, he said, natives are taking game without the use of ammunition, and he quoted one old Eskimo as explaining "every time a seal is taken in a sinew net, that saves one .30-30 cartridge for Mr. Jap."

Origin of a Name.

The word Alaska is believed to be a corruption of a native term, Al-ay-ek-sa, meaning "The Great Land."



A general view of Attu Island

Eskimo Depicts Aleutian Isles Invaded by Foo

Author Here Says Only 75 Natives Lived on Attu; Kiska Is Not Inhabited

Only seventy-five native Aleuts lived on Attu Island in pre-war times, and Kiska Island has long been completely uninhabited except for a government "listening-post," a thirty-nine-year-old Eskimo author and lecturer named Nutchuk said here June 12 in commenting on the two islands in the Aleutians on which the Japanese were reported to have made landings.

Nutchuk, whose English name is Simeon Oliver, and who is the author of a boy's book published here last year, "Son of the Smoky Sea," said both Attu and Kiska, like all the islands in the Aleutians, are completely barren of trees, and that any invader would find it impossible to "live off the land."

"I presume the inhabitants of the only little village on Attu have been evacuated by the American forces long ago," Nutchuk said in an interview at the Young Men's Christian Association, 356 West Thirty-fourth Street, where he has lived since he came here several years ago. "If the Japanese have landed there they will have to bring food and supplies with them, if they hope to stay. The natives of Attu were able to subsist on fish, duck eggs and other local food, but I doubt whether foreigners would be able to do the same."

Attu is about 800 miles west of Dutch Harbor, and Kiska 650 miles west of Dutch Harbor, Nutchuk said. (He explained it was improper to address him as "Mr. Nutchuk.") The "Mr.," he said, was considered an inherent part of any Eskimo name.) Both islands are barren except for grass and moss, and both mountainous, he declared.

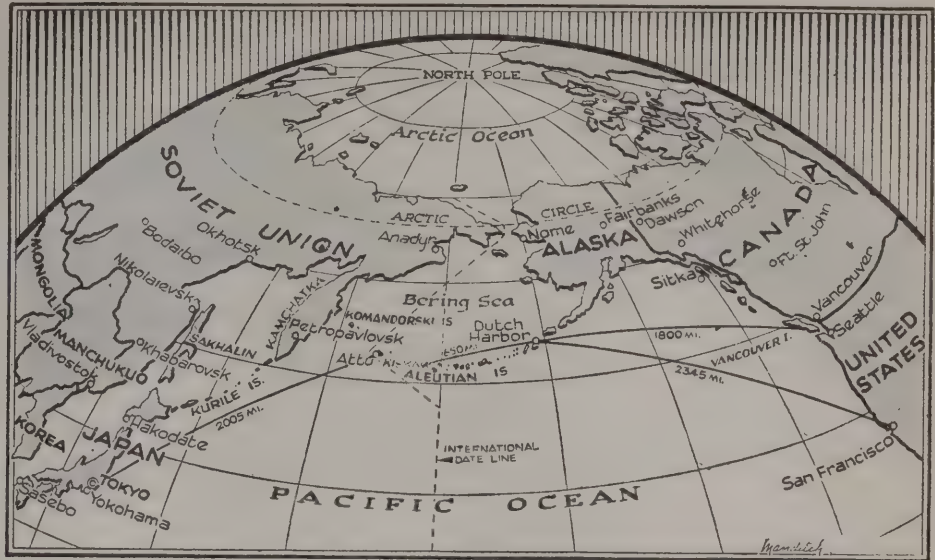
"If there are any Aleuts left on Attu you can be sure they are fighting the Japanese tooth and nail," Nutchuk said. "Aleuts and Eskimos are different peoples, but both have in common a great pride in living under the protection of the United States flag, and an unquenchable hatred of the Japanese. The inhabitants of Attu lived a primitive life by American standards, but they were happy and peaceful in their little village until the war started."

The Aleuts on Attu lived in sod huts equivalent to the Eskimo igloo until American educators in recent years encouraged them to build frame houses, Nutchuk said. The barren terrain did not offer good military protection for an invader, he added.

Nutchuk said he was born in Chignik, Alaska, and is of Norwegian as well as Eskimo blood. At an early age he moved to Unalaska (Dutch Harbor) and was reared there in a Methodist mission.

Alaskan Water Power Untapped

Alaska contains vast undeveloped potentialities for water power when population or industry may require them, reports The Associated Press.



Barrow's Eskimos Do Part in War Effort

The Christian Science Monitor

BARROW, Alaska, April 8—The 550 Eskimos on these most northerly shores of the United States' domain are in this war as deep and as earnestly as the chief air raid warden in Times Square and the volunteer fire bomb spotters detailed to the Wilshire Boulevard, Los Angeles, skyline.

Perhaps more than any previous experience under the wing of the American Eagle, this war and Selective Service have defined democracy for these broad-faced, broad-smiled, broad-dispositioned Americans.

Conscription has taught the Eskimos that they may march on even terms in the same ranks with

their white foster-cousins. The assault on Pearl Harbor proved that, as civilians, they are entitled, and anxious, to rub shoulders with their fairer skinned compatriots in the protection of their own bleak, barren—but their own—front yard.

Stanley Morgan, the man behind the dit-dahs of the Alaska Communications System at Barrow the past 13 years, is chief of Civilian Defense in his village, 325 miles above the Arctic Circle. His lieutenants are Douglas Johnson, United States Reindeer Service, and Delwyn Rasmussen, Government meteorologist, instructors of the rifle unit; Howard Burkher, principal of Barrow's five-teacher public school, chief air raid war-

den; the Rev. Fred George Klere-koper, Presbyterian missionary, fire chief; and Mildred Keaton, hardy dogmushing "angel of the Arctic," first aid chairman.

Since Dec. 7 nightly blackouts have been effective in the Eskimo community. Twenty-four-hour volunteer guard has been maintained, with each shift, whites among the greater number of natives, standing a six-hour turn at distributed intervals.

To make the plan clearer for the Eskimos a large peg board was constructed in the school's woodshop. Each peg represents a volunteer guard. Each hole symbolizes an assigned post. When an Eskimo leaves the village, temporarily, for a hunting foray on the tundra back country, he pulls his peg. Upon his return the peg is put back into the hole. It's an honor system—and honor among Eskimos is exemplary.

Like their fellow Americans from Key West to Bremerton, Barrow's Eskimos know another call as strong and undeniable as a Civilian Defense assignment or an induction notice from the local draft board. One plane, alone, on a recent southward return flight from Barrow took off with five Eskimo volunteers for Uncle Sam's Army.

Just one suitcase. For the five of them.

Within the battered oversized Gladstone lay five neat piles of personal belongings. Stacked atop each pile was a Holy Bible.

Salmon Crews Defy Japanese

ANCHORAGE, Alaska, June 23 (U.P.)—Hardy Alaskan salmon crews opened the Bristol Bay fishing season yesterday despite enemy occupation of Attu and Kiska in the Western Aleutian Islands. The Bristol Bay region annually yields about 20 per cent of Alaska's salmon pack. It lies north of the Aleutian Islands.

Alaskan Eskimos Take Well to Army Life; Six Rookies Will Be Used for Scout Duty

ANCHORAGE, Alaska, Jan. 6 (U.P.)—Six Eskimo rookies of the United States Army's Alaskan Forces enjoy military life despite their aversion to kitchen police.

The six, ranging from 18 to 22, left their Arctic homes near Point Barrow, northernmost tip of Alaska, about Dec. 1 to join the Army. They adjusted themselves speedily to the new way of life.

"The officers and noncoms are too good to us," said Private Lloyd Ahavkana, one of them. "It seemed hard at first to be in a place like this, but we're adjusting fast. Kitchen police duty is tough—but everybody's doing it."

Ahavkana's companion's are Privates Isaac Taalach (soon to be corporal), Clifford Mongoyuk, Edele Hopson, Hoover Koomalook and Bartlett Kudvalak.

Army officers expect to use the Eskimos for scout duty in Alaskan operations. Although they are fast travelers on snowshoes, they never used skis before their enlistment.

They have become enthusiastic and expert skiers.

Their commander, Captain Donalds M. B. Adler, a veteran Alaskan soldier, reported that they were learning other duties readily.

"The men are proud of their uniforms," Captain Adler said. "They are excellent soldiers, quick to learn. They could put a rifle together after a sergeant had stripped it but once in a demonstration."

The Eskimos became heroes at Point Barrow when they responded to an Army recruiting officer's call. They paraded through the streets in military formations for several days until, clad in parkas, they flew to Fairbanks for induction.

Before their enlistment they were reindeer herdsman and sealers, and all were excellent marksmen. They recall a day in August, 1935, when they were among the first to the scene of the airplane crash in which Will Rogers and Wiley Post were killed.

Alaska Salmon Fishermen Set To Fight Japanese Poachers

Trouble Anticipated When Annual Run To Inland Waters Gets Under Way

By WILLIAM GILMAN.

(Released by the North American Newspaper Alliance, Inc.)

ABOARD SHIP OFF THE ALASKAN COAST. (By Air Mail).—The Japs are fish eaters, and we Americans eat much more of the sea's produce than we sometimes realize. And that's why a battle between rival fishing fleets of the two countries off the Alaskan coast is possible this summer.

We'll be the victors, if it turns out the way it did in 1938, when stout Alaskan fishermen, with rifles in their boats, announced that Bristol Bay's famous red salmon were "American citizens" — and Jap poachers had to get out.

The salmon run is always packed with action. This prize food fish represents Alaska's chief export. In one delirious month, between June 20 and July 20, the reds and pinks are caught, cleaned and canned.

Many to Be on Guard.

It will be the same this year. The fishermen don't intend to go out of business just because the Pacific is no longer Pacific. And our Government, aware how important salmon is to the nationalarder, will be protecting them with the Navy and Coast Guard.

It looks like a good salmon year according to old-timers. Leaping 20-pound king salmon can be seen swimming alongside of this ship as it prowls from one Alaskan port to another.

They're finishing their long trek home, looking for signposts and as much a mystery to science as ever. How does the salmon know where he was born? But he always does.

He's hatched in fresh-water streams and lakes. A couple of years later, when he's several inches long, he follows the streams down in a migration to open sea. A few years later, when he's fully grown, some instinct tells him to go home. He goes right back up the same river and same creek to the same lake where he was born—there to spawn and die.

It's during this spawning migration that the salmon are caught for food—often in huge traps outside the mouths of rivers. Preparations for the salmon harvest are already under way, but with a difference due

to war conditions. This ship is bringing up the advance guard of cannery company officials and crew members. They're being dropped along the way at seacoast towns—and sometimes at inlets where the "town" is nothing more than a cannery.

Trouble Due at Any Time.

But the days are getting longer and weather conditions are improving. Japanese trouble is due any time in this war area. Along with the usual boat drills, the ship also has gun practice by its armed guard.

The very life of Alaska depends on salmon. More than 7,000,000 cases—48 one-pound cans to the case—are filled annually. The catch is worth around \$50,000,000. That happens to be half of Alaska's total exports—more than gold and furs combined. It also represents seven times what we paid Russia for Alaska.

Alaska's coasts are dotted with the canneries, big and little. The great packing companies own their own ocean-going vessels which, each summer, bring up thousands of fishermen from the United States and serve as floating hotels during the salmon run. Now most of these ships have been taken over by the Government for war use.

Despite this, and the fact that fishing won't be allowed in waters where protecting war vessels won't be close by, the catch this year is expected to be around, four-fifths normal. As in pre-war days, it will be a boom month, with the canneries supplying boats, nets and credit to anybody who wants to fish. "Anybody" includes men, women and children—teachers, preachers and clerks. It also includes the bulk of Alaska's Indians, who rely mainly on salmon for food and funds.

Alaska Is Jap-Conscious.

All this has made Alaska Jap-conscious, because it's only a few hundred miles from Japan to Alaskan waters. Our policy has been one of conservation—regulations allowing enough salmon to escape, so they won't be exterminated.

After years of American complaints against Japanese slaughtering methods, Tokio agreed in 1935 to suspend commercial fishing in the Bristol Bay area, where the precious red salmon is caught.

But two years later, Alaskans in that region got almost no salmon, and the few they did catch had been marked by nets. It turned out that Japanese floating canneries had been anchoring outside the three-mile limit and using nets over a mile long and reaching from the bottom of the sea to the surface.

On top of this came reports that the Japs were camping on shore, shooting reindeer and feeding whisky to the inhabitants of the Aleutian Islands. Further investigation showed the Japs were fishing in season and out. And of course they were also charting our strategic waters for hostile purposes.

With aerial photographs and affi-

Aleutian Isles Of Little Use, Explorer Says

The man who unquestionably knows more about the topography and climate of Attu and Kiska Islands than any other mainland civilian believes they will never have anything more than a nuisance value to the Japs.

He is Dr. Ales Hrdlicka, noted anthropologist of the Smithsonian Institution, who explored those westernmost stepping stones in the Aleutian chain in 1936, 1937 and 1938.

"Beyond the fact that they might be used as annoyance bases for mid-gest submarines, I think Attu and Kiska will be useless to the enemy," he said.

"The islands are mountainous and cannot possibly have landing fields. Kiska has incessant fogs. It has a fair bay, but navigating it in a fog is very risky. A big ship could not turn around in Attu's tiny harbor.

"Kiska is uninhabited and Attu had only 70 people when I was last there in 1938. There was only one structure on Kiska, a hut once used by our Navy. Hardly anything can grow on either island. Food, oil and every other requirement of an invading force would have to be brought in from the outside. And that is not easy.

"Americans need not take alarm because the Japs are there."

CANNIBALS ONCE ON KODIAK

Smithsonian Expert Traces Tribe on Island

WASHINGTON (UP)—Some of the earliest settlers on the North American continent—cannibalistic migrants from Siberia who settled on Kodiak Island—used the skulls of vanquished enemies as drinking cups, according to Dr. Ales Hrdlicka of the Smithsonian Institution.

These early-day Americans, Dr.

Hrdlicka said, used the skulls of valorous enemies in the belief that some virtues of the deceased might be transferred to them.

He said a study of the skeletons of the islanders showed they apparently were remarkably free from disease. Even fractures were infrequent, Dr. Hrdlicka reported, and evidences of dental decay were missing, although their teeth showed signs of advanced wear.

Dr. Hrdlicka found numerous pierced skulls, indicating the tribal medicine men practiced primitive forms of surgery, chiefly on women patients. The operations appeared to have been performed with considerable skill and the patients apparently survived, Dr. Hrdlicka said.

LEGUMES GROW ON ROCK

Army to Experiment With Plot on Kodiak

FORT GREELY, KODIAK, Alaska (UP)—Kodiak island, hitherto considered just a rocky, wet home for bear and salmon, has agricultural plans this year.

General Charles H. Corlett decided that Fort Greely ought to become self-sustaining in greenstuffs, and he selected Lieutenant Eugene L. Russell, graduate of Oregon State College of Agriculture, to start production.

Chief problem with the Kodiak soil is the heavy volcanic-ash deposit, which came sifting down from the tremendous Mount Katmai eruption in 1912. But two Kodiak islanders have reported success in raising lettuce, cauliflower, peas, beans and potatoes. They have been using land from which volcanic ash has been scraped by laborious toil.

Such a process for the proposed ten-acre experimental plot at Fort Greely would be impractical, so Lieutenant Russell will try to "sweeten" the ash with fertilizers and legume cover crops.

Every bit of food for the soldiers, with the exception of experimental radish, cabbage and potato supplies, has to be brought in by boat.

davits, our fishing interests demanded that Japan live up to its agreement. The Japs retorted that Bristol Bay wasn't a closed sea and said they were justified in fishing outside the 3-mile limit. A Jap scientist remarked to an American member of the International Fisheries Commission: "You evidently think those salmon bear the Stars and Stripes on their backs."

When Alaska's fishermen saw that all this parleying was getting nowhere, they took things in their own hands to protect their industry. Some of them went out in the 1938 season and had high-powered rifles in their boats along with plenty of ammunition. They told the Japs to keep away—or else.

The Japs scamped away and promised to live up to their 1935 agreement. But they were haunting Alaskan waters again last year—and this summer, our men are ready to fight it out for the salmon. The Japs may rely on the aid of their navy, but we'll have ours.

Alaskans have been instructed how to avoid mines and how to keep from being mistaken for an enemy submarine—U-boats have been known to disguise themselves as fishing vessels, with a patch of white paint on the sides and a rag of a sail rigged to the periscope.

The fishermen will also have to use "plain English" in their messages back to their canneries. Before the war they used code to baffle competitors. A radio message that a skipper was coming in with "three loaves of bread and a case of rum" really meant how many fish he was bringing. But the 13th Naval District, in charge of these waters, has put such code on the banned list—it doesn't want Jap naval vessels to pose as salmon fishermen on the air.

Before the summer is over, our fishing fleet may also turn out to be an invaluable aid in sending out an alarm if the Japs start operations against Uncle Sam's Army and Navy bases in Alaska.

The Polar Times

Published June and December by the AMERICAN POLAR SOCIETY, Care American Museum of Natural History, Central Park West at 77th Street, New York, N. Y.

AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published January and July by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

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BISHOP ROWE, 85, 46 YEARS IN ALASKA

He Preached in Saloons and Gambling Houses—Built First Nome Church Himself

SEATTLE, June 1 (AP)—The Right Rev. Peter Trimble Rowe, Episcopal Bishop of the Missionary District of Alaska, died at his home in Victoria, B. C., early today, his diocesan office here announced. He was the oldest living active Bishop in the church. His age was 85.

Had Motley Congregations

For forty-six years Bishop Rowe was known as "the Bishop of all outdoors," not only to his flock in Alaska but in many countries, and it aptly described. By snowshoe and dog-sled in Winter and canoe in Summer he covered the far reaches of his diocese, ministering to Eskimos, Indians, gold prospectors, traders and adventurers.

He literally "built the church" with his own hands, constructing the first at Nome, during one of the gold rushes, with lumber he fashioned himself. He built his own boats, and many wayside missions still standing are tribute to his skill at carpentry. On one occasion he followed the "rush" to Cordova and competed with saloon men for the only lumber available. The Bishop won and erected a clubhouse, the only counter-attraction to the fourteen saloons in the boom town.

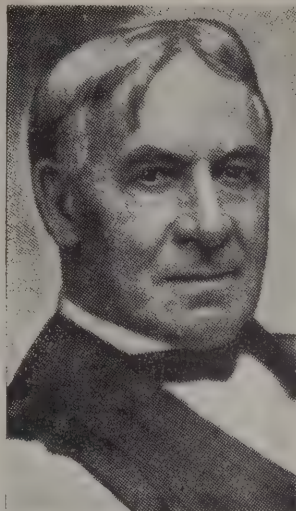
Changed Undershirt at 70 Below

Pink-cheeked and hearty, with an appetite for beans and tea, his habitual field diet in the north country, Bishop Rowe showed little effects, until his fatal illness, of his early hardships. He boasted a few years ago that he "had never been sick a day in my life." This although he once went without food for three days and, on another occasion, changed his undershirt outdoors in a temperature 70 degrees below zero because he feared the perspiration induced by a difficult "mush" would freeze and make him sick.

"You have to know how to take care of yourself, he explained, "but it's a great life."

Once, early in his episcopate, he made the brass rail of a Fairbanks saloon his "pulpit," and after his sermon and prayer, the proprietor, making his own hat the collection plate, made the rounds of the prospectors who constituted the involuntary congregation. With the resulting \$1,400 Bishop Rowe built a church.

He made his first airplane flight in 1926, explaining, somewhat apologetically, that it was necessary because of an urgent visit he had to make to an Eskimo village. Thereafter, however, he used planes almost exclusively for his rounds, covering as much of his diocese in five months as he formerly did in three years by dog-team.



BISHOP PETER T. ROWE

Bishop Rowe was born in Meadowville, Ont., Nov. 20, 1856. He was graduated from the University of Trinity College, Ont., and in 1878 he went to Algoma County, Ont., then a pioneer country. In that year he was made a deacon of the Church of England and was ordained a priest two years later.

Bishop Rowe married Miss Dora H. Carry on June 1, 1882. Mrs. Rowe accompanied him to many of his frontier missions until her death in May, 1914. They had a son. In October, 1915, he married Miss Rose Fullerton, to whom three sons were born.

Cared for Gold Seekers

Bishop Rowe, the first bishop of the Missionary District of Alaska, was the only man to cross the Chilkoot Pass in the gold rush of 1897 who was not in search of gold. To the thousands of prospectors who were amazed at the intrepidity of his missionary zeal and his lack of greed for gold, he explained that he went along to "look after you."

When Bishop Rowe was consecrated in St. George's Church, Stuyvesant Square, in 1895 as the first missionary bishop of Alaska, the territory had a population of only 2,000 white persons in its 600,000 square miles of snow and ice. Gold had been discovered there in 1862, and later, in 1879, by Juneau, a Frenchman, after whom the City of Juneau is named, but there had been no feverish rush of prospectors.

But on Aug. 16, 1896, nearly a year after Bishop Rowe went to Alaska, George Carmack found gold on Bonanza Creek in the Klondike region of the Yukon territory, and by 1897 the rush was on, the first of a series of rushes that swelled the population of Alaska and widened the scope of Bishop Rowe's missionary work.

The bishop could hold his own with the rugged men of the Yukon. Six feet four in height, trained by outpost pastors in Canada and northern Michigan, he could handle dogs as well as any prospector, and he traveled hundreds of thousands of miles by dog sled in the forty-seven years of his Alaskan bishopric. He endured great hardships in Alaskan snows, but persevered, founded schools and hospitals and missions.

L. C. BERNACCHI, TWICE WENT TO ANTARCTIC

Physicist on Southern Cross and Scott Expeditions Dies at 66

LONDON, April 24 — Lieut. Comdr. L. C. Bernacchi O. B. E., R. N. V. R., physicist on the Southern Cross Antarctic Expedition in 1898 and the National Antarctic Expedition led by Captain Robert F. Scott, 1901-04, died today at his home in London. His age was 66.

Commander Bernacchi was born in Tasmania, the eldest son of A. G. D. Bernacchi, a justice of the peace. He was educated at the Hutchins School, Tasmania, and at Melbourne University (Observatory Branch).

After serving with the Southern Cross Antarctic Expedition of 1898, he came to England in 1900 and received the Cuthbert Peek Grant from the Royal Geographical Society. Commander Bernacchi traveled in British Namaland and German South West Africa in 1905 and in the primeval forests of Peru (Upper Amazon Basin) in 1906.

He was the author of "To the South Polar Regions," published in 1901, and of various articles on terrestrial magnetism, meteorology, seismology, gravity and atmospheric electricity. He held the United States Navy Cross, the King's Antarctic Medal and the Royal Geographical Medal and was a Chevalier of the Legion of Honor.

He married in 1906 Winifred Edith Harris, third daughter of Alfred Hellyer Harris of South End, Donnington, Chichester. To them were born two sons and two daughters.

HAROLD BIBBY

Meteorologist Who Made Arctic Surveys for Canada Was 49

TORONTO, Feb. 11 (Canadian Press) — Harold Bibby, retired meteorologist who had studied magnetic and atmospheric conditions in the Arctic Circle for the Canadian Government, died here last night in Christie Street Military Hospital from a recurrence of ailments due to wounds suffered in the first World War. His age was 49.

Born near Bolton, England, Mr. Bibby came to Canada in 1911 and served overseas with the Canadian Army. He studied architecture for two years before obtaining an appointment to the staff of the Dominion Meteorological Bureau here.

Early in 1921 he went to the Arctic to do meteorological survey work for the government. First plans were that he should join the polar explorer Roald Amundsen, but these failed when Amundsen's boat cracked up in an ice floe. With Eskimos as his guides, Mr. Bibby toured meteorological stations all through the Arctic.

C. HART MERRIAM, SCIENTIST, DIES, 86

Famous as Naturalist, Author and Founder of the U. S. Biological Survey

BERKELEY, Calif., March 20 — Dr. C. Hart Merriam, noted naturalist and author, who founded the United States Bureau of Biological Survey, now known as the Fish and Wild Life Service, died here last night at the age of 86, after a long illness.

Since his retirement three years ago as a research associate of the Smithsonian Institution he had been living at the home of a daughter, Mrs. M. W. Talbot, in this city.

In the Adirondacks, at the age of 12, Dr. Merriam started collecting insects and birds, and soon his interests included reptiles, marine invertebrates and plants. He had won such attention by the age of 16 that he was invited to go as naturalist with the famous Hayden Survey of the Territories, known as the Yellowstone Survey.

His interests eventually took him on exploring and collecting trips through every State in the Union, Alaska and Bermuda. He had investigated the seal-fur fields of the Pribilof Islands, and, as surgeon aboard the steamer Proteus in 1883, studied seals on ice floes between Labrador and Greenland.

HAROLD E. O'NEILL

NEW BRUNSWICK, N. J., May 23 — Harold E. O'Neill, an editorial writer on The Daily Home News of New Brunswick, with which he had been associated for thirty-six years, died here today in St. Peter's General Hospital of heart disease at the age of 53. He started with the paper as a reporter, later serving successfully as its sports editor and a editor of The Sunday Times, its Sunday edition.

Mr. O'Neill made several trips to the Arctic regions and wrote a book on the aurora borealis entitled "Auroral Drama," published in 1937.

John Weir Troy Dies; Was Alaska Governor

By The Associated Press.

JUNEAU, Alaska, May 2. — John Weir Troy, 73, former Governor of Alaska, died today.

He was the owner of the Juneau Empire, Juneau's oldest daily newspaper.

Mr. Troy, for years a prominent Democrat in the territory, served as Governor from 1933 to 1939.

SAMUEL J. ENTRIEN

ORLANDO, Fla., Feb. 20 (AP) — Samuel J. Entriem, a member of Peary's expedition to the North Pole, died last night. He was 79 years old.

Northwest Passage

With a global war suddenly throwing attention on all possible strategic areas of the world, it seems especially timely to review a phase in the background of one such locality which is ever looming larger in defense considerations of the United States. In the account of two early explorations made by Sir Alexander Mackenzie in the northwestern corner of North America, the reader will find a romantic element linked with attempts to find an elusive northwest passage to the Orient, and a clue to why this area now, as then, is important.

By Ta-De-Win

The Christian Science Monitor

When that intrepid Scotchman, Sir Alexander Mackenzie, discovered a water route from Fort Chipewyan, Alberta, to the Arctic Ocean, he did not expect he was affording means of transportation to Napoleon's hostile army, but this might easily have been the case had not the Russians given that dictator a decided setback, just as today they are dealing with another dictator, whose aims may be identical—namely, reaching Canada from the north.

One hundred and fifty years ago, the tall, stalwart Alexander Mackenzie had already pushed his frail, bark canoe as far north, as the Polar Sea. On that portentous voyage he was seeking the nebulous Northwest Passage, which would permit ships from England sailing west and north through Arctic waters and Bering Strait to reach the Orient. However, that elusive Northwest Passage was not discovered until 50 years later by Thomas Simpson, while at a much later date (1903-1906) Roald Amundsen's 47-ton schooner, the *Gjøa*, successfully navigated its waters.

Sir Alexander's vividly written memoirs were published in 1801, the same year he received the honor of knighthood in recognition of his discoveries. In 1824 when a relative, William Mackenzie, had an interview in Stockholm with Gen. Jean Bernadotte, then Charles XIV John of Sweden, the latter told how Napoleon planned to conquer North America as soon as Russia was disposed of, and turned this gigantic task over to him, General Bernadotte, with the order to read every available book on Canada.

Found at Helena

Napoleon had heard of Sir Alexander's voyages, and, although England and France were not on speaking terms, managed to smuggle his book out of England and had it translated. In fact, a copy of the French edition was found in Napoleon's library at St. Helena.

"I had made myself so thoroughly master of it (Sir Alexander's book)," said General Bernadotte, "that I could almost fancy taking your Canada en revers from the upper water; however, the Russian campaign knocked that of Canada on the head, until Russia was crushed! But it pleased God

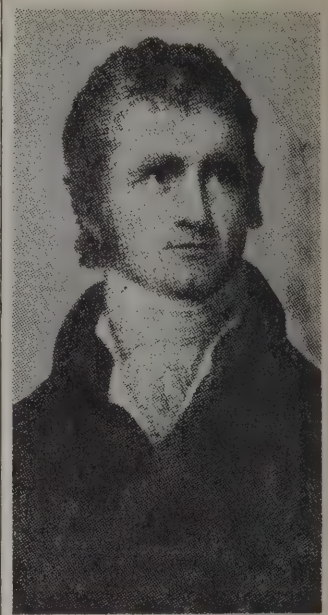
to ordain it otherwise, et maintenant me voilà, Roi de Suède!"

Sir Alexander came from Scotland to Canada in 1779, and, as a trader for the Northwest Company of Montreal, went west and settled at Fort Chipewyan, when any collection of huts in the wilderness was dubbed a "fort." A born explorer himself, he found others like minded, and with the definite purpose of locating that long river to the north about which Indians had told him, as well as establishing trading posts, Sir Alexander and his acclimatized Canadians set forth in canoes from Fort Chipewyan on Lake Athabasca, in June, 1789. They had Indians as guides and helpers, besides seeking aid of the tribes they encountered.

Sir Alexander appreciated the Indians, didn't sentimentalize over them, but treated them as human beings, took along beads, knives, hatchets and firesteels to trade for hospitality, friendliness and service. Otherwise their equipment was light, Sir Alexander preferring to depend upon the woods and rivers for sustenance. In his book Sir Alexander gives a colorful portrayal of different tribes and devotes several pages to usable Indian-English vocabularies.

From Lake Athabasca or as the Indians called it, "the Lake in the Hills," they went north along the Slave River to the Great Slave Lake, where the unknown river was supposed to have its source. Here the Indians they met tried to dissuade Sir Alexander from continuing, saying that "the river is so long, that old age will come upon you before your return." For answer, Sir Alexander searched that Great Slave Lake and finding it, sailed down that 2,000-mile long river which empties into the Polar Sea. When he reached the delta of the river which today bears his name, Sir Alexander took possession of the country in the King's name. Then the gallant band turned around, sailed up the Mackenzie River and on to Fort Chipewyan, arriving there Sept. 12, 1789.

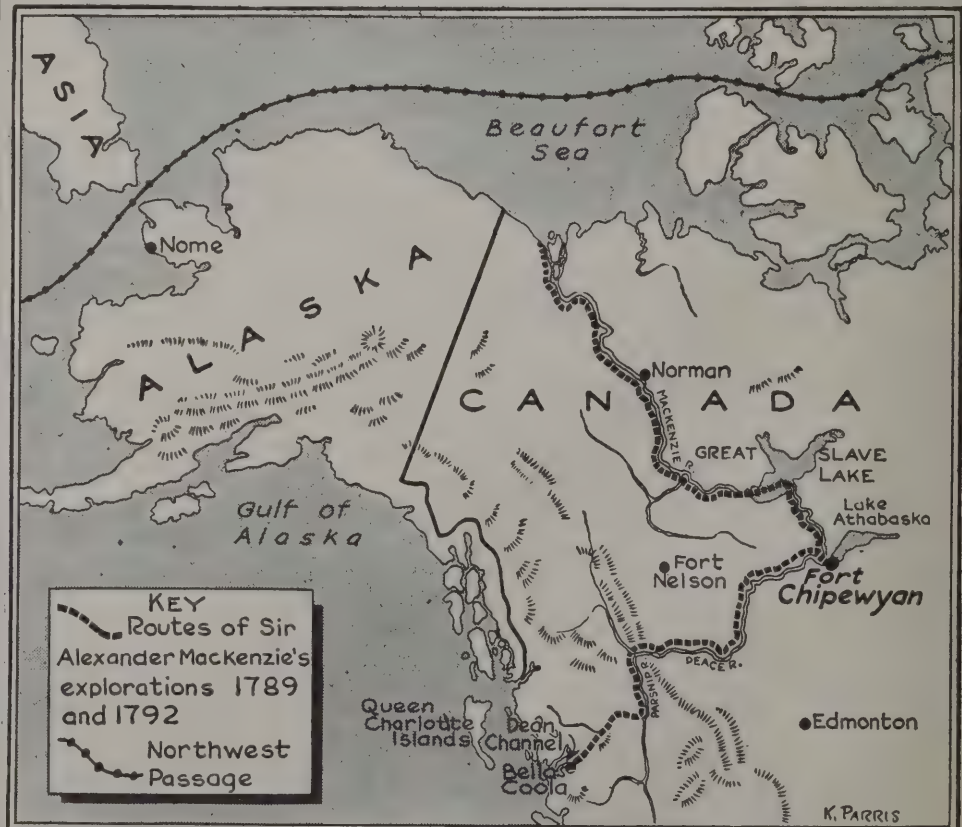
This voyage convinced Sir Alexander that there was no practical



Canadian National Parks

Sir Alexander Mackenzie

Northwest Passage, and he decided that the next best thing was an overland route to the Pacific Ocean. So, in October 1792,



Daring Adventures by Mackenzie Helped Open the Northwest

The two routes taken by Sir Alexander Mackenzie late in the 18th century are shown above. Both based from Chipewyan in what is now Alberta, Canada, the first winds northward along the great river which bears the explorer's name, to the Beaufort Sea. The second leads westward along the Peace and Parsnip Rivers, then overland to the Pacific Ocean. This trip gave Mackenzie the distinction of being the first white man to cross the North American continent north of Mexico.

three hundred years after Columbus landed on one of the Bahama Islands, he left Fort Chipewyan, going west long the Peace River, by canoe when possible, and at Fort Fork, which he established at this time, the explorers spent the winter to journey forth once more when spring came.

Only Sir Alexander's sympathy and superb management of his men enabled him to come through, for many were the difficult carries, almost perpendicular mountains to climb and roaring rivers to forge. But no matter how toilsome the journey, they took time out to marvel at the glories of the Rockies.

At the source of the Parsnip, the southern branch of the Peace River, they crossed a low divide to a small lake, whose waters flowed into the Fraser. But as that river went too far south, Sir Alexander ascended one of its tributaries, the Blackwater and by land and water, reached Bella Coola, where the Indians feasted them with roast, salmon and berries. Continuing his voyage to the open ocean, he followed North Bentinck Arm and on to Dean Channel.

They landed near Elcho Harbor and found the ruins of a village and to the south of that, an isolated, spreading and evidently flat-surface rock, for the little company spent the night on that rock, which has been definitely identified as Sir Alexander Mackenzie's Rock.

So Sir Alexander has two extraordinary voyages to his credit, as this last one made him the first white man to cross the North American continent, north of Mexico and gave Canada an outlet on the Pacific Coast.

And his first voyage opened up a Northeast and Northwest passage to the Mackenzie River and down to the heart of the Dominion of Canada and the United States. A very possible passage when invaders have schooners, canoes, sledges and guides, a knowledge of open waters and ice-packs and the proper sustenance for an Arctic sojourn, and, above all, perseverance and determination. Sir Alexander's River can become a menacing highway as well as a beneficent one!

Canadian Icebreaker Delivered to Russians

Believed Keeping Passage in White Sea Open

OTTAWA, May 13 (CP).—The Canadian icebreaker Montcalm, 1,432 tons, has arrived safely in northern Russia and will remain at the service of the Soviet government for the duration of the war, it was announced today by the Department of External Affairs.

The ship is believed to be in service in the White Sea, keeping the water passage between Murmansk and Archangel open for the movement of troops and supplies.

Sub-Arctic Canada's Oil Field May Supply Alaskan War Bases

Raids on Pacific Coast Tanker Route Emphasize Potential Value of Norman Wells Source, Easily Linked and Sheltered From Attack

By Richard Finnie

The recent shelling and sinking of tankers by Japanese submarines along the Pacific Coast has directed attention anew to the importance of sub-Arctic Canada on the home war map. Alaska, only half as far as Hawaii from Japan, must be defended, and because of its nearness to Tokio it may be the region from which the most telling aerial counter-blows may be struck. For the last several years the Army and Navy have been fortifying Alaska and establishing bases there until the territory today is a powerful outpost.

To keep Alaska's war machinery running, however, oil is needed, and every gallon has to be brought in tankers from California up the vulnerable Pacific Coast; none is produced locally, as oil reserves in southern Alaska never have been developed.

On the banks of the Mackenzie River, less than 100 miles south of the Arctic Circle in Canada, is the world's most northerly oil well and refinery. It is in about the same latitude as Fairbanks, Alaska, and 300 miles from Mayo, Yukon Territory, at the head of Yukon River navigation. Experts believe that the construction of a tractor road or pipe line, or both, between this oil source and Mayo is practicable.

Canada's sub-Arctic oil is being tapped at Norman wells, about fifty miles downstream from the old trading post of Fort Norman.

In 1919 the Imperial Oil Company, Canadian subsidiary of Standard Oil of New Jersey, sent drilling crews with equipment down the Mackenzie to test for oil. The following season a gusher was brought in, precipitating a minor rush into the district. Claims were staked up and down the river in the Fort Norman vicinity by many individuals, but soon all the promising claims were bought up by Imperial Oil, which has maintained its monopoly.

In the 1920's the local market proved too limited to warrant production for it alone, and a proposal that a pipe line be run from Norman to a railhead a thousand miles to the south was abandoned.

In 1929 the beginning of serious mining exploration in Canada's northwest territories was marked by the first crossing of the Arctic Circle, by airplane along the Mackenzie River. In that year and subsequently the half-million-square-mile Mackenzie District was combed from the air by prospectors, one of whom staked the richest radium mine in the world—Eldorado, on Great Bear Lake, about 200 miles east of Norman. The development and operation of Eldorado at once justified a reopening of the Norman well and the drilling of fresh ones.

Since 1932 Norman wells have been producing steadily. The development of gold mines around Yellowknife at the north arm of Great Slave Lake in 1937 created still another outlet for Norman oil. By 1939 Norman had installed new equipment so that it was able to satisfy practically all the requirements of the Mackenzie district, pro-

ducing not only fuel oil and ordinary gasoline but high-octane aviation fuel as well.

For years a small number of far-sighted men have been inquiring into the possibilities of Norman wells in joint United States-Canada defense. They have found that although Norman is geared to produce only 400 barrels a day, and is operated for only a ninety-day summer period, production could be stepped up by sinking a half-dozen more wells to at least a thousand barrels a day and, since the Norman crude is very liquid, it would be easy to keep up production even in the dead of winter.

The figure of 1,000 barrels a day is thought to be a conservative estimate for Norman, but even that would be sufficient to run several hundred airplanes besides continuing to supply the boats and mines of the Mackenzie district. But some geologists (including those of Standard Oil of New Jersey) say that Norman may be capable of producing 5,000 or more barrels daily, which would give it real naval and military importance.

Between Norman Wells and Mayo lie the Mackenzie Mountains. Aviators say that the slopes appear to be gradual both from Norman and Mayo, that the divide is a wide, swampy plateau, with a maximum elevation of around 3,000 feet. To build a tractor road between these points might be little more difficult than was the building of the winter road from Peace River to Great Slave Lake, completed uneventfully several years ago, and now used for freighting to the Yellowknife area.

The cost of a Norman-Mayo winter road might be \$300,000, only a fraction of the cost of a submarine or destroyer. The time factor would not be great, if two crews worked toward each other from Norman and Mayo they could, it is estimated, complete the road in less than six months. A pipe line could be laid at the same time. It would not have to be buried.

With a winter road and pipe line connecting Norman with Mayo, Alaska would no longer be wholly dependent on coastwise tanker service for oil, and its new source would be far removed from any likely scene of conflict. And a corollary to defense protection by sub-Arctic petroleum would be the erection of military bases. Fairbanks is the great United States military aviation center of the western sub-Arctic; perhaps Norman should be the Canadian.

Finally, the creation of a road and pipe line from Norman to Mayo would stimulate the economic development of Alaska, the Yukon Territory and the Mackenzie district in peace time; it would provide a new market not only for Norman oil but also for that which is being tapped at McMurray, in northern Alberta.

Kinds of Snow

Many of the big snows of the season have come and disappeared into the earth. Meteorologists have recorded their depth and quality; sports enthusiasts have dragged assorted skis and sleds from closet recesses to play on them, while the remainder of the populace has used snow as a reminder that "winter is here."

Most persons know that snow forms when a sudden temperature drop causes water vapor in the air to crystallize on dust particles. Few, however, realize that there are more than a dozen varieties of the icy phenomenon. According to the experts, "falling snow" is atmospheric precipitation frozen into crystalline form. When it hits the ground, it is termed "fallen snow."

At first, "fallen snow" is "powder snow," a soft, fluffy, feathery material. One of the fluffiest snows ever observed took three hours to accumulate to a depth of one one-half inch, falling at the unusually slow speed of 2 feet a second.

If "powder snow" comes to earth at low temperature, it may form "sand snow," occasionally found in Greenland, on which it is difficult for skis and sleds to travel. An extremely unstable type, "wild snow," occurs in complete calm at low temperature.

Called "settling snow" after its first contact with the earth, the precipitation soon becomes the close-lying powdery "settled snow" most enjoyed by skiers. Passing from new to old snow, it is transformed into a granular, compact material known as "new firm snow." Variations of this type include "sun-crust" and "rain-crust," which occur when melting is followed by re-freezing.

Completing the snow cycle is the "advanced firm," which becomes "firm ice," or, as a result of intense pressure, "glacier ice."

Among the most unusual types of snow are the colored snows which result from the presence of microscopic algae or fungi in the atmosphere. While black, blue, and green snows have been found, red snowfalls are more common. In Canada, dust at high levels sometimes encounters cold air to condense and fall to earth as brown snow.

Wireless Replaces Ice Patrol

BOSTON, March 3 (UP).—In times of peace ships of the International Ice Patrol customarily would head to sea about this time of the year, but now, instead, the Navy uses wireless for warning of icebergs. The Hydrographic Office today reported that heavy ice floes, constituting a menace to navigation, have been located east of Cape Breton, drifting out of the Gulf of St. Lawrence into the shipping lanes.

Both "Died" February 19.

The Navy Department reported that the death of the destroyer Peary—defenseless for lack of air protection—came at Port Darwin, Australia, on February 19.

Rear Admiral Peary died in 1920. The date was February 19.

Russia Wins Sea Supply Routes

By Paul Wohl

The Christian Science Monitor

Supply routes into Russia now are carrying many times the traffic they could handle when the Nazis first entered the country.

They are carrying as much as the Allies can deliver to them.

The two principal gateways into Russia now are the White Sea and the Indian Ocean routes, thrown wide open by the stubborn unceasing effort of hundreds of thousands of anonymous workers and technicians recruited among some of the most motley peoples of the world.

Although the Indian Ocean Gateway is closer to the critical Black Sea front, the Archangel-Murmansk supply line is even today the more efficient of the two.

Here Soviet foresight installed years before the war a port and rail equipment far superior to anything that existed in the first World War. It also has the advantage of being closer to Britain and America.

There has been much controversy about the handling capacity of Murmansk and Archangel. The secrecy with which these ports have been surrounded by the Soviets may have confused German saboteurs, but unfortunately for several months it also seems to have been detrimental to Allied planning. Today a certain amount of public information is available.

Of the two ports only Murmansk is ice-free all year round, but for military reasons the Soviets have concentrated their equipment in Archangel and other White Sea ports. Moscow feared the proximity of the Finnish border to the Murmansk railway.

In the beginning, British and American shipping experts who remembered the difficult conditions in Archangel during the first World War and the disorganization of Imperial Russia's railroads had doubts as to whether substantial supplies could reach the Russian front by Murmansk and the White Sea ports. Recent experience has shown conclusively that Russia is fully equipped to receive the goods and that the handling capacity of its ports as well as its inland transportation facilities are likely to be greater than the carrying capacity of Allied ships.

Safest Year-Round

Turning to the Eastern approach to Russia, the Arctic route to northern Siberia is Russia's safest all-year-round supply line. Its traffic under present conditions will probably never be quite as great as that which can be shipped over the White Sea and the Indian Ocean routes. Since July, 1941, it is reported to have carried about half as many supplies as have reached Russia through the Middle East.

Its principal advantage is its safety. Even if the Nazis should advance to the Urals and into Iran, supplies by way of the Arctic



Ship of Russia's Northern Sea Route Administration on the ice-clogged Kara Sea

would continue to bolster Russia's defenses in Asia. Axis bombers or submarines are not likely to disturb shipping in the Arctic. By way of the Arctic Allied supplies could also reach China in transit through Siberia. Such transports are barred by the relations between the Soviet Union and Japan. Collaboration between Allied and Russian engineers exists, but it is limited to shipments for the European and Middle Eastern front.

Until a few years ago the Arctic route was considered navigable only in summer. During the last two years, however, icebreaker services have been so improved that ships can ply the Arctic sea in the middle of winter.

In January, 1942, "Shipping World," Britain's most authoritative shipping magazine, first announced that the route around Siberia was no longer closed from November to May. According to later reports, more than a hundred Russian and Allied ships have reached Dickson harbor at the mouth of Siberia's mighty Yenissei River in the course of the last six months, carrying equipment and supplies.

Distance Misleading

Dickson is less than 3,000 miles from Leith, the port of Edinburgh in Scotland, and about 5,000 miles from Seattle.

Contrary to their usual secrecy regarding matters of transport and communications, the Soviets have given considerable publicity to the work of the Central Administration of the Northern Seaway which holds the rank of a special Commissariat directly under the central government. For good reason they do not seem to be afraid of enemy sabotage or intervention along Siberia's Arctic coast.

Today there is a chain of harbors and coal and oil depots, of meteorological and radio stations, of airports and icebreaker stations all along Arctic Siberia from the Bering Straits to the Barents and the Kara Sea. Dickson alone has six radio stations, of which two cover the entire globe.

During the summer months ships pass without much difficulty through a strip of charted navigable water along the coast. Regular meteorological bulletins and reports on ice conditions issued by planes patrolling various sectors of the route are sufficient guidance. In winter icebreakers assisted by a special air pilot service convoy ships through the ice. According to "Shipping World," convoys move on a regular schedule and hardships are not greater than usual on other routes in northern latitudes.

Modern icebreakers

Where the ice is particularly heavy, the icebreaker leads each ship separately through the difficult

spot, sometimes even taking it in tow. Russia's large modern icebreakers displacing 12,000 or 11,000 tons, immensely strong in framing and scantlings, cut ahead of the convoy while medium icebreakers take care of individual ships and a flotilla of smaller icebreakers is constantly engaged in reconnoitering ice conditions in collaboration with the Polar Aviation Service. The winter voyage from the Bering Straits to Dickson takes generally less than six weeks. Ships used in the Arctic are mostly solid medium cargoes of about 3,000 gross tons.

Judging by the number of ships which have reached Dickson harbor the total amount of supplies which the Allies have sent over the Arctic route can be estimated roughly at almost 500,000 tons. This means that Soviet cranes and dock labor in Siberia had to discharge an average of 1,700 tons a day—in view of the poor technical facilities a notable achievement.

During the summer months ships do not unload in Dickson, but at Igarka, a port 377 miles up the Yenissei River. In 1928 Igarka was a tiny village of 43 inhabitants. By 1936 the Siberian timber export by way of the Arctic had developed so extensively that Igarka in one summer shipped 500,000 trees to Europe. In 1937, the town had 20,000 inhabitants. The great purge and administrative transfers of population are probably responsible for its growth.

From Igarka

From Igarka shipments are carried in river barges many hundred miles upstream to Krasnoyarsk on the Trans-Siberian, close to Kusbass, the industrial stronghold of the U. S. S. R. in West Siberia which is connected by several railroads with European Russia. The completion of a northern spur line of the Trans-Siberian from Krasnoyarsk to Yenisseisk, a city 200 miles farther north, will relieve river traffic.

The Soviets have increased their shipping services on the Yenissei in recent years, but traffic accumulated in Dickson during the winter is so vast, compared to pre-war traffic conditions, that they will have to make the most rational use of their barges. Only a relatively small part of the shipments which reached Dickson since November can have been sent into the interior on sleds or by air. The Russians today have a successor to their ill-fated giant plane Maxim Gorki, which crashed in 1935. This new six-motor air freighter which spans 210 feet has a disposable load of 14 tons. In addition a number of medium freight planes are constantly stationed in Siberia, so that the more urgently needed material may have been carried by air from Dickson to the Trans-Siberian. By far the greater part, however, must be waiting for the river services to resume operations.

Summer Sun That Never Sets Imperils Ships Carrying Supplies to Ports in North Russia

WASHINGTON, June 3

American and British ships carrying supplies through the perilous waters north of Norway to the Russian ports of Murmansk and Archangel, have sailed their course for the past few months in the long winter darkness of the Arctic. But for the next few months these ships—unless they can dash into the cover of summer fog—may become illuminated targets made visible for as long as 24 hours a day, by the summer sun that never sets.

After the sun builds up to its 24-hour-a-day duty, it floods the region with constant daylight, but it gives out noticeable heat only during the midday period when it climbs highest into the sky, says a bulletin from the National Geographic Society.

This area within the Arctic Circle, commonly and erroneously thought of as a vast barren wasteland of cold blue ice, on one summer day had the highest recorded temperature in all of Europe—95 degrees—reported from a coast point in Northeastern Norway. Eighty-five degrees summer shade temperatures are not unusual; and at Fort Yukon, Alaska—farther around the Circle—100 degrees has been recorded by a United States weather station.

Masts Penetrate Fog Blanket.

But the summer that brings constant light to the North, also brings the Arctic "skodde" to the seas. This streak of gray-black fog covering thousands of miles of sea is constantly advancing and receding, but it seldom touches the northern coast of Norway. It is a welcome shelter for airplane-dodging convoys, that must keep plying this vital lifeline to Russia. Unlike early mariners who dreaded fog, today's sailors purposely dive into these fog banks rising before them like walls.

Soviet North Pole Flyer Raised to Major General

By the Associated Press.

MOSCOW, May 4.—Col. Mikhail Gromov, Russian air hero who established a world record for long-distance

non-stop flight in 1937 by flying over the North Pole from Russia to California, was made a major general of aviation today by Premier Joseph Stalin.

He was one of 77 named generals in a long list of promotions.

Gromov had been a colonel since the start of the war, commanding an aviation group which was credited with downing many German planes.

Gromov and two fellow flyers landed near San Jacinto, Calif., on July 14, 1937, 62 hours and 3 minutes after their Moscow takeoff. Their direct air line distance was 6,262 miles, but they flew much farther to avoid bad weather.

In 1940, Gromov headed a 36-member Russian air mission which attended a school of instruction at the Army's Petterson Field in Dayton, Ohio.

Occasionally this low-lying fog which forms a protective screen for ships is so low that sailors on the decks of vessels are completely invisible to each other, while lookouts in the crow's nests can clearly see masts of other vessels poking through the blanket of mist. But generally, the "skodde" is high enough and dense enough to screen completely convoys steaming through the fog belt from any enemy planes cruising in comparatively clear sunlit skies above them.

Because of the difference in temperature and humidity over land and water, fogs are almost always present somewhere in the Arctic. Along the Murman Coast, the rugged, barren granite cliffs are often shrouded for as long as 14 days without a break. The cloudy, ice-locked port of Archangel averages only about 28 cloud-free and fog-free days a year.

Gulf Stream Moderates Climate.

The danger from huge ice flows off the Murman Coast is negligible, although patches of loose ice—pancake and sludge—may occur in the sheltered bays and inlets that indent the shores. The warm water of the Gulf Stream surging around the northern tip, together with the warm winds blowing from it, moderates the climate and keeps the vital port of Murmansk open the year round.

Drift or Polar pack, which occupies at least two-thirds of the Arctic Ocean, seldom reaches closer than within 200 miles of North Cape, although in April, 1929, the ice field slipped southward to within 80 miles of the cape. That same spring—and only once in history—icebergs were sighted off the coast of Murmansk.

Archangel, on the east side of the White Sea, is untouched by the warming influence of currents and winds and is more or less ice-locked from October until June. Temperatures in the White Sea, with the exception of the extreme southern part, average well below freezing the year round. So cold are the southeasterly spring winds blowing across the sea from the frozen lands, that anchors eased down have frozen to a vessel's side within less than a half hour.

Flowers Carpet Arctic Ground.

Early Russians who peopled the snow-covered shores of the White Sea in the 16th and 17th centuries knew the full meaning of the cold winds and the ice-choked sea. They called the sea the "Studenti," meaning "cold." Later, because of the white rip tides and the snow smothering the shores for 10 long months of the year, the name was changed to the "White Sea."

But in this Arctic region, where in the calmer days of summer mirages may appear before the eyes of land-hungry sailors, and where in the winter the colorful Aurora Borealis quivers in the skies, not all things are held down by the cold hand of the weather. Lands upon which the sun spreads its light and warmth are covered in the short summer months with brilliant flower patterns. Because of the unbroken sunlight, the growth rate of vegetation is more than double that in the tropics.

It is true that Arctic winters may bring temperatures as low as 50 degrees below zero (and even 90 below in the Yakutsk section of Russia) but there is less storminess and actually less snowfall than in either Scotland or Illinois. A temperamental "blow" may whisk a ship from its course, but winds in the Arctic are weaker than in many other sections of the world.

British Turn Over Mine Sweepers In Arctic to Russians

LONDON, May 13 (P)—A group of whalers which the British have used for two years for mine sweeping has arrived at the Soviet supply port of Murmansk for service with the fleet, the Ministry of Information said yesterday.

The whalers were handed over to the Russians at the Arctic port after what one British officer called "a nightmare trip" through ice formations, mist, gales, floating mine fields and bombing attacks.

The officer said that steam hose were useless against the ice formations three and four feet thick on the decks and the wheelhouse of his ship.

"Finally we had to abandon our course to turn and run before the wind so that all hands could get to work with pickaxes and hack the ice away," he added, "we cleared 40 tons in an hour. It was as hard as concrete."

Plan Arctic Expeditions

Russians Will Continue Surveys of Northern Sea Route in Spring

MOSCOW, March 14 (P)—The Institute for Arctic Research is fitting out several expeditions to continue its study of the northern sea route and of movements of icebergs and currents, to help navigation.

Large-scale aerial and land reconnaissance is planned for the spring and work is to be started to insure the safety of traffic along the Arctic route, it was announced tonight.

Army Designs 17-Ounce Stove

BOSTON, May 16 (P)—A stove weighing only seventeen ounces and ignited by a sparking device similar to that of a cigarette lighter has been designed by the Army Quartermaster Corps for use by ski and mountain troops, the 1st Corps Area announced today. So simple that it may be operated by a soldier wearing heavy gloves, the new stove burns gasoline, kerosene or alcohol, and is of such sturdy construction that it can support the weight of a 200-pound man.

Vilhjalmur Stefansson, explorer and author, is among the fifty civilians chosen by the War Department as field consultants of the new Advisory Board to the Resources Division of the Office of the Quarter-

Naval Flying Crosses Given Two Members Of U. S. Expedition

WASHINGTON, Feb. 14

Aviation Chief Machinist's Mate Ashley Clinton Snow, jr., 3417 Minnesota avenue S.E., and Earle Baker Perce, who is stationed at the Naval Research Laboratory at Bellevue, were awarded Distinguished Flying Crosses by the Navy today for hazardous flying with the Antarctic expedition of Rear Admiral Richard E. Byrd in 1939-40.

The citation accompanying Snow's award says that he piloted the airplane on many flights during which mountain ranges, islands and 700 miles of Antarctic coastline were discovered. The flights were made over broken pack ice where a forced landing would have resulted in a crash, and where rescue would have been almost impossible.

"Particularly outstanding in aerial achievement was the final evacuation of the personnel from the east base on March 22, 1941," the citation said. "In the successful accomplishment of this hazardous undertaking Snow demonstrated an unusually high degree of sound judgment, courage and professional skill which reflect great credit upon the naval service."

The citation with Perce's award is identical to Snow's, except for his identification as co-pilot and radio operator on the flight.

Byrd Polar Data Called Aid in War

WASHINGTON, June 16 (P)—

The United States Antarctic Service, headed by Rear Admiral Richard E. Byrd, has reported to Congress that the expedition developed "a great deal of scientific information that will be immediately applicable to our present war effort."

The House Appropriations Committee agreed today to make available for the next fiscal year \$30,000 out of a total unexpended balance of \$39,000 of service funds to permit completion of the expedition's scientific reports and publication of expedition records.

J. E. MacDonald, administrative assistant to Admiral Byrd, told the Committee, "We have already made a very comprehensive report to the War Department on cold weather clothing and a very comprehensive report to the Navy Department on long-range radio operation and on airplane operation in sub-zero temperatures."

"The cartographic work which is being done, particularly in the Palmer Peninsula area, which is directly south of South America, has, I am informed, some strategic value which the War Department considers highly important."

master General Mr. Stefansson will head a group which will study equipment of men assigned to service under unusual climatic conditions.

EARLY EXPLORATIONS AND INVESTIGATIONS IN SOUTHERN SOUTH AMERICA AND ADJACENT ANTARCTIC WATERS BY MARINERS AND SCIENTISTS FROM THE UNITED STATES OF AMERICA

LAWRENCE MARTIN

Chief, Division of Maps, and Incumbent, Chair of Geography,
Library of Congress, Washington, D. C.

PROCEEDINGS: EIGHTH AMERICAN SCIENTIFIC CONGRESS

In October 1829, Captain Nathaniel Brown Palmer, who had discovered the mainland of Antarctica nine years earlier, sailed from New York in the brig *Annawan* and Captain Benjamin Pendleton sailed from Stonington, Connecticut, in the brig *Seraph*. With them traveled five scientific investigators, Dr. James Eights of Albany, New York, Dr. John Frampton Watson of Philadelphia, Pennsylvania, Mr. Jeremiah N. Reynolds of Wilmington, Ohio, and two associates whose names are not known. These five gentlemen were, as it seems, the first persons from the United States of America who carried on scientific investigations and inland explorations on the continent of South America. The captains of the two brigs independently explored the waters, largely uncharted, between South America and Antarctica.

Eights of Albany is the great name in the group. He was a trained physician and an accomplished naturalist, adorning the science of geology, including glaciology, and being highly competent in botany and zoology as well. Testimonials to this effect are to be found in the writings of Pierre Louis Antoine Cordier, distinguished French geologist and academician, of John M. Clarke, State Geologist of New York, of H. D. House, State Botanist of New York, of Sir Joseph Dalton Hooker, a great English botanist, and of W. T. Calman, celebrated zoologist and president of the Linnaean Society of London.

The scientific investigations by Eights commenced in southeastern Argentina where he landed at several places on the eastern coast of Patagonia in January, 1830. He collected, *inter alia*, a crustacean, which he called *Brongniartia trilobitoides* and which is now known as *Serolis trilobitoides* (Eights), and also a plant subsequently identified as *Adesmia candida* by Hooker.

In the Isla de los Estados, or Staten Island, southeast of the Straits of Magellan, Eights continued scientific collecting. Here the botanical results included the plants *Viola magellanica*, *Stellaria debilis*, *Galium antarcticum*, *Senecio eightsii*, *Clarienea magellanica*, and *Pratia repens*. Doubtless some of these names have been modified in modern botanical practice.

In extreme southern Chile, upon islands near Cape Horn, Eights pursued his botanical and zoological studies shortly after January 22, 1830. A previously unidentified isopod, described as being found in unusual abundance in pools left by receding tides, was *Sphaeroma bumastiformis*.

Eights's principal geological studies were carried on in the South Shetland Islands, an archipelago much nearer to Antarctica than to South America. Here he spent the month of February 1830. He was the first professional geologist to say "let [Antarctic] rocks their silence break." He showed that the South Shetland Islands were underlain by argillaceous conglomerate and sandstone, dipping southeast at angles of 12° to 20°, intruded by basalt, and with carbonized wood in the conglomerate. Among recent plants, he found *Usnea fasciata*, *Atra antarctica*, some species of *Avena* and of *Polytrichum*, *Usnea melaxantha* and one or two other lichens, and a marine *Fucus*.

The sea life included two new species, *Glyptonotus antarcticus* and *Decolopoda australis*, a 10-legged, red sea spider, to say nothing of the more familiar fur seals, elephant seals, sea leopards, whales, porpoises, etcetera. Eights identified at least sixteen species of South Shetland birds besides five species of penguins. He worked out the regime of the South Shetland tides, finding only one ebb and flow every 24 hours in most localities, and studied the ocean bottom deposits.

The substantial geographical contribution of the two North American mariners in 1829-31, aside from taking the scientists to the places where they worked in Argentina, the South Shetland Islands, and Chile, was their demonstration that no oceanic islands are to be found southwest of South America along the particular courses independently traversed by the two brigs. A logbook in the Library of Congress, that of the schooner *Penguin*, a consort of the *Annawan* during the voyage from Staten Island to the South Shetlands and on to the Island of Mocha in Chile, contributes to meteorology, oceanography, and ornithology by indicating (1) directions and forces of the wind day by day, (2) days

when there was rain or sleet, (3) presence or absence of icebergs and other sea ice, and of floating kelp, (4) distribution of penguins and other oceanic birds. During the six-weeks' voyage of Captain N. B. Palmer and his brother Alexander in the South Pacific, they sailed 3,642 miles between February 20 and April 3, 1830, starting from Potter's Cove in the South Shetlands, continuing to a point in the ocean near 58° 01' south latitude and 103° 03' west longitude, and ending at the Island of Mocha south of Concepción, Chile. Watson and Reynolds sailed westward on the *Annawan* with Captain Palmer.

Eights anticipated Charles Darwin some nine years in observing glacial boulders carried in or left by floating icebergs and deducing from them the geology of unvisited lands poleward from the points of observation in the South Pacific Ocean and in the Shetland Islands. He probably sailed from this archipelago about March 1, 1830, on the *Seraph* with Pendleton and reached Chile early in May, after exploring southwestward and westward from the South Shetland archipelago in the waters between 60° and 70° south latitude and 54° and 101° west longitude. By convincing deductions from two months of collecting meteorological, oceanographic, zoological, and botanical data, including facts about the prevailing winds, the fogs, snow, sea ice, icebergs with rocks in them, ocean currents, kelp, penguins, terns, etcetera, the Albany naturalist established the existence of a long stretch of unseen land. He thought it to be insular, that is an extensive chain of islands, but it was actually a portion of the Antarctic mainland west of the Palmer Peninsula, a part of the *terra incognita* which Admiral Richard E. Byrd mapped by airplane flights from the *Bear* in 1940.

In southern Chile, where the *Seraph* and the *Annawan* operated together in 1830-31, Eights presumably continued his geological, botanical, and zoological studies, chiefly in the lands adjacent to the Chonos Archipelago, the Gulfs of Ancud and Corovado, the Island of Chiloé, and adjacent islands and waters. Reynolds and Watson, landed by Pendleton and Palmer at the mouth of the River Arauco on July 23, 1830, spent four months or more in the interior of the so-called Araucania, exploring the lands, investigating the resources, and studying the native people. They brought back thirteen chests of scientific specimens which were placed in the Lyceum of Natural History at New York City and two chests which were given to an institution at Philadelphia, Pennsylvania. Reynolds presented to the Boston Society of Natural History in Massachusetts a substantial collection of ornithological, botanical, marine, and mineralogical specimens, not only from the South Shetlands and Chile, but also from Perú and the Galápagos Islands as well. Fragments of Eights's herbaria are in the State Herbarium at Albany, New York, other portions being with the collections of Sir Joseph Dalton Hooker in England. His geological and zoological specimens, and his field notebooks, have not been located.

These explorations and scientific studies in the southern parts of Argentina and Chile, and in adjacent islands and waters, resulted indirectly from a message which John Quincy Adams, President of the United States of America, sent to our Senate and House of Representatives on December 6, 1825, only five years after the discovery of the Antarctic mainland by Palmer. If Pendleton and Palmer had not taken Eights and Watson and Reynolds in 1829-31 to the localities alluded to above, there might never have been a United States Exploring Expedition of 1838-42 under Admiral Charles Wilkes. Eights's field work in Patagonia and Isla de los Estados in Argentina, and near Cape Horn in Chile is one of the very early professional scientific investigations in the coastal regions of South America, as well as in the South Shetland Islands and South Pacific Ocean not far north of Antarctica, by a technically qualified scholar from North America. Reynolds and Watson's studies in Araucania, Chile, seem to constitute the first exploration and scientific field investigation in the interior of South America by learned men from the United States of America.

DODGING A GERMAN RAIDER

By ARNT VIKESTAD

AUGUST, 1942 YACHTING

In his own words, we give here the report of a Norwegian seaman telling of the escape of his ship, a Norwegian "factory" ship, and other Norwegian whalers in the Antarctic, from a German raider close to the ice of the southern continent.

The factory ships used during the whaling season 1940-41 were of about 16,000 tons deadweight. The catcher boats are between 250 to 350 gross register tonnage and are equipped with powerful engines ranging up to 1400 hp. They are capable of making speeds of between 13 and 15 knots. Here is the story.

WE WERE on the hunting grounds in December, 1941, and January of this year. It was nothing but work, eat, sleep — whales, whales, and more whales. The war that was raging in Europe, the danger that threatened those in the homeland, seemed very far away. Our job was to get as much whale oil as we could. We were carrying on into the middle of the season, while the weather was good, and there were still whales in abundance. Later on, the weather would be extremely bad and it was up to us to get as much oil stocked up in our tanks now as we possibly could.

Our catcher rushed off and brought back whales, reported her catch by radio or reported whales she was hunting, whales she had seen, single whales, schools of whales. The factory reported her position regularly and sent us messages asking about the supply and telling us when she was ready for more. In other words, everything was going as it is meant to go on a whaling expedition.

By January 14th, 1942, we had 75,000 barrels of oil. On that day, one of the factory ships, the *Solglimt*, had just called, and we had taken on fuel and provisions from her, while she took on 22,000 barrels of oil from us. Then she went on to another factory ship, the *Ole Wegger*. We went back to our work, glad that the job of transferring our oil was over one more time.

We had made a good catch. We were comfortably ahead of the two other factory ships, the *Pelagos* and the *Ole Wegger*. We had whales alongside and our boilers were working at full speed. Each of our catchers had reported three or more whales. That was really prosperity.

About 7:30 in the evening of that day, the day shift was just turning in. The boys were happy. It had been a heavy day but the results were good. The night shift was about to go on. It was like that — no break, day or night. We sighted two catchers coming in, heading for us. One of them was a little ahead of the other.

"She's certainly putting on speed," someone said. "She hasn't any whale alongside," somebody else added. "There must have been an accident and they want the doctor," a third man suggested.

The first catcher headed full speed right alongside us. Someone shouted through a megaphone to our bridge:

"Cut off your radio! Get going! The Germans have taken the *Wegger* and the *Solglimt*!"

"I'll give it to you in writing," called their gunner. He was Kjelstrom in the catcher *Globe Otte*, which belongs to

the *Wegger*. He circled and came up under our bow and handed up the letter. By that time, the other boat had reached us. She was the *Thorarin*, another of the *Wegger* catchers.

We couldn't have been more amazed if lightning had struck. A feeling of disaster came over all of us, as it did on April 9th, the day Norway was invaded. For a minute or two, our minds stopped working. Then the same idea came to us all: We had to get away. The chief dashed through the factory, cut off steam, stopped everything running. A minute before, motors, mills, presses, separators and all the rest of the machinery had been working at full speed. Now the ship was completely silent. All our steam had to be saved to feed the engine.

Our next thought was for the whales we had on both sides. Pull up as many as you can, was the first order. Then: "Don't. It will take too much time. Drop everything," was the next order. And in a second the sides were clear of whales. The factory began to shake. We were moving, putting on all the speed we could. Which way should we go? We began to drive southward into the ice. A whale catcher lying alongside us was bunkering. She had got some but wasn't finished. Still, she had to leave with what she had. Another of our catchers had come in with whales. That accounted for two of them, but there were still five more. Should we warn them?

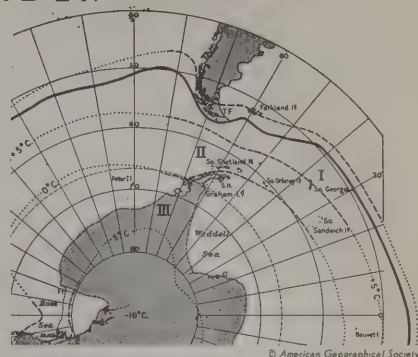
We had agreed on a kind of war code to be radioed in case of danger. We sent the code. The next question was the lifeboats. Usually, while we were out on the hunting grounds, we had them secured and even loaded down with some of our stuff. Now we might need them. So they were cleared, swung out, and hurriedly examined to see if their equipment was in order.

There was nothing more we could do now. All that mattered was to get away. We forced the engines, fleeing toward the southwest with all the speed we could make.

A whole whale was lying on deck — fat, meat, bones and all. Let it lie. No boilers were to be emptied, nothing thrown overboard. The radio was cut off. We couldn't listen or use our own radios or those in the messes. They might howl, and sensitive listening sets might discover us. Nothing must be allowed to give our pursuer an idea of where we were going. Only the receiving set in the radio operator's room is in use. The operator listens, and hears that some of our catchers have not quite understood our code messages and are asking for an explanation. One of our gunners answers on the radiophone: "Shut up!" That's all.

A little later Kjelstrom comes alongside again and asks if we cannot get a warning to the *Pelagos*. The *Pelagos* is trying to get word to the *Solglimt* and says that she is trying to head towards her, not knowing that the Germans have her. The *Pelagos* lacks fuel oil, and so does the *Solglimt*.

But if the *Pelagos* keeps on she will run right into the trap, because the German raider is with the *Solglimt* and the *Wegger*. We were further west, the *Wegger* was about 180 miles east of us, and the *Pelagos* about another 100 miles east of her. If we got a message to the *Pelagos*, it would



The whalers operate in this part of the world. The heavy line marks the limits of the polar regions

only tell the Germans that we knew what was going on and, worse, they would be able to locate us. They probably had twice our speed. So our manager shook his head.

"We can't do it," was shouted over to Kjelstrom.

A new depression fell over us because we could not warn the *Pelagos*, still at liberty. But we tried to console ourselves. Perhaps one of the *Wegger*'s catchers had got away and would be able to warn the *Pelagos* in time.

Meanwhile, more and more of our catchers were coming and joining us. Finally only two were missing. We discovered afterwards that they, too, had gotten away.

By this time it was nearly dark. It never gets completely dark at that time of year but snow was beginning to fall heavily. We were still heading full speed into the ice, with whale catchers in front of us and alongside. Here was something we were used to doing. The Germans would have trouble trying to follow us now. The ice and the heavy snow would give us our chance to escape.

We carried on like this until two in the morning. Then we came on heavy ice and found it impossible to go any farther south. After a brief discussion, we headed for South Georgia. Five days later, we were there.

After we had had a chance to collect our wits a bit, we started figuring out how the catchers *Globe Otte* and *Thorarin* had got away. The explanation proved to be this:

At daybreak, the *Globe Otte* was on her way back to her factory ship, the *Wegger*, with two whales. They heard the manager call the boats, one by one, asking each boat to come in and deliver her catch, and then wait for orders in more detail.

Gunner Kjelstrom, in the *Globe Otte*, found this a bit queer. When he was fairly near the *Wegger*, he began to reconnoiter; when he was close enough to see her through binoculars, he saw a third ship, besides the *Wegger* and the *Solglimt*. She was a vessel of around 12,000 tons and was armed with guns.

Then Kjelstrom remembered that Evensen, the manager, had sounded queer over the radio, and that he had asked one of the catchers to come in with whales, a vessel which had reported that she had none.

It was a tough situation. Kjelstrom knew that his boat, the *Globe Otte*, had certainly been seen by the raider. The raider must also have discovered the *Thorarin*, which was obeying orders and heading toward the factory, even though she had no whales.

But Kjelstrom knew then what he was going to do. He let his whales go, and then he radioed the *Wegger*, about four o'clock in the morning: "Have sighted blue whale." Then he changed his course, got under cover of an iceberg, and reported: "I've got the whale."

A little later he reported again: "Line caught in propeller, need help." He radioed the *Thorarin* for help. The *Thorarin* set off innocently to give him aid and, when she came up, Kjelstrom explained what he had seen.

His suspicions were confirmed when he heard a voice over the *Wegger*'s radio, speaking Norwegian all right but with a decided German accent.

The two catchers then agreed to hunt for the *Thorshammer*, another of the catchers, and to warn her that they had heard her radio and knew what course to take. They gave their boats all the speed they had. They reached us on January 14th, about 7:30 in the evening. So far, so good! And good for Kjelstrom. He had done some fast thinking.

And on Sunday, the 19th, we were off South Georgia. Another catcher from the *Wegger* had arrived there, the *Pol 7*. She had been alongside the *Wegger* just before the German arrived, taking in fuel. That was between midnight and one o'clock on the morning of January 13th. The *Solglimt* was next to her. The night shift was having its luncheon hour. *Pol 7* was just pulling out when a dark shadow appeared in front of the *Wegger*. A searchlight suddenly pierced the gloom. Perhaps they were looking for a cannon on board the *Wegger* or the *Solglimt*. Then all lights were put on. The guns on board the raider were manned. Machine guns were directed against the crews on board the *Wegger* and the *Solglimt*. The only weapons they (the whalers) had to defend themselves with were fencing knives and they were not much use against machine guns and cannon. The raider pulled alongside the *Wegger*. The *Wegger* and the *Solglimt* were both taken by the Germans that morning.

The boys on board the *Pol 7* were shaken. This was terrible. They discussed various means of escape. Should they try to ram the raider at full speed? It was soon agreed that this wouldn't work, and that they would have to try to escape. With a minimum of speed and with the greatest caution, they drifted off. The Germans must not notice that the engine was working. In this manner they got a short distance away. Then a snow storm set in and it was full speed ahead right away with everything they had — the chance had to be taken. The searchlight from the raider crossed the stern once but, before the snow squall had passed, the catcher was so far away in the night that she could no longer be seen.

The "factory" ships are large vessels (about 16,000 tons dw.) aboard which the whales are cut up and their oil tried out. Below, whale carcasses on the deck of a "factory" ship awaiting processing



One of the "killer" boats which chase and capture the whales. Note the harpoon gun mounted forward. Each "factory" ship is supplied by six or eight of these smaller vessels

NAVY ACQUIRES YACHT USED AS A RADIO SHOP

E. F. McDonald Jr. Transfers the Mizpah, Floating Laboratory

The 185-foot yacht Mizpah, floating home and experimental radio laboratory of E. F. McDonald Jr., president of the Zenith Radio Corporation, was recently turned over to the Navy for war service, the corporation announced March 29.

The Mizpah, built in 1926 at a cost of \$1,300,000, was bought by Mr. McDonald in 1929 and had served as his home since. It carried him from polar regions to the tropics on many exploring expeditions.

Several important radio improvements were first developed through experimentation aboard the McDonald yacht. It is said that the Mizpah, since the decommissioning and sale of the yacht Electra after the death of its owner, Guglielmo Marconi, was the only floating experimental laboratory in the world.

The Mizpah is powered by Diesel engines and has a cruising range of 7,000 miles.

Harpoon Industry Needed To Meet War Scarcity

By The Associated Press.

NEW YORK, Feb. 3.—Uncle Sam has the creation of a brand-new mass industry on his hands—the making of whaling harpoons.

The sperm oil of whales, among its other uses, is valuable as an industrial lubricant, and the job of making the harpoons will give work to small manufacturers under the armament program.

The contract distribution branch of the War Production Board told this story of the need for the 5-foot instruments of death which are shot into whales from cannon.

Until the war started they were hand-forged from Swedish iron by Scandinavian whalers in their off-season and sold for \$40 or \$50. Their customers were all over the world.

Whalers of American and other nationalities thus left the harpoon-making job largely to the Scandinavians, so there was never any need for mass manufacture in this country.

Now this Government wants 1,000 of the instruments made as quickly as possible, and the W. P. B. has appealed to its New York office for help in finding small manufacturers with facilities for the job.

ESKIMO HIS OWN DENTIST

Carves Ivory Tooth and Drives It Into His Jawbone

Dentistry literally has taken firm root among the Eskimos. A MacKenzie Delta Eskimo had a tooth knocked out by a harpoon handle. He had heard of the white man's false teeth, and after pondering the matter for a while, he carved a tooth from ivory, root and all, and drove it into his jawbone with a mallet.

Wild Sheep Range Alaskan Wilds



Exhibit at Academy of Natural Sciences, Philadelphia

Habitat group of golden-horned, white-fleeced rams of the Dall's White Sheep family are shown against a background of Alaskan peaks as they make their way down a mountain pass. They were collected in Alaska for the Academy by an expedition financed by R. R. M. Carpenter of Wilmington, Del., a Trustee of the Academy.

Mounted Group of Alaskan Sheep Is Opened to Public in Philadelphia

PHILADELPHIA, Jan. 16—Five silvery rams descending a mountain pass in Alaska, gaze through the plate glass window of a new habitat group today at visitors to the Academy of Natural Science's Free Museum on the Parkway in Philadelphia. A preview of the group was given to members of the Academy last night.

The five golden-horned, silver-fleeced rams—of the Dall's White Sheep family—are seen coming down the mountain in a setting designed and executed by Harold T. Green, against a painted background by Arthur August Jansson. For the setting Mr. Green has used a quantity of Labrador tea and other Alaskan herbage. For the background Mr. Jansson has taken a view of the Wood River district of Alaska—where the sheep were collected. The whole effect is one of mighty distance, sweeps of snow and lofty heights.

The group is a gift from R. R. M. Carpenter of Wilmington, Del., who is a trustee of the Academy. Mr. Carpenter financed the expedition in the autumn of 1940 on which he, accompanied by Mr. Green, collected the rams at the headwaters of the Wood River. The trip was made by airplane.

Mr. Carpenter—who paid for the erection of the habitat group as well as for the expedition—has already presented five other groups. They show pronghorn antelope,

caribou, musk-ox, mule deer and African buffalo.

The Academy of Natural Sciences in Philadelphia was one of the first institutions to begin to modernize its museum by rearrangement of exhibits, with emphasis on habitat groups. Twenty of them have now been opened.

Flying north to Fairbanks, Alaska, and thence into the mountainous wastes where Cody Creek joins the Wood River, an expedition from the Academy of Sciences of Philadelphia has studied and collected the rare Dall's sheep. These sheep were named for William Healey Dall, explorer and Bostonian representative of the United States Government to Alaska back in the 1870s.

Headed by R. R. M. Carpenter, trustee of the Academy, the group went by boat from Seattle to Ketchikan, chartered a plane to Juneau and caught another for Fairbanks, arriving there late in 1940. Accompanying Mr. Carpenter was Mrs. Carpenter, Ernest Miller and Harold T. Green, Curator of Exhibits at the Academy who was to study the terrain, foliage and other details of the home of the Dall Sheep, or "Silver Ram" as Ernest Thompson Seton has called him.

According to Mr. Green, base camp was established where the Cody Creek joins the Wood River, at a point on the edge of timber line. Near by, on dizzy cliffs and

long steep slopes where gravity exerts its mightiest to dash anything loose down hundreds of feet, the Dall's sheep enjoy an almost unmolested existence," he said.

"Amid the rugged, snow-capped peaks are steep slopes with patches of Dryas, a plant greatly favored by the sheep as food. On these tilted pastures are found bands of rams or ewes, feeding and sleeping in the eerie stillness of the mountain heights.

"Often the banks of the small streams feeding the Wood River cut through salt and sheep come to lick at these places. Passing up the rocky stream beds is trying work, as the boulders are smooth as glass from algae, which despite, the icy coldness of the streams, covers every rock.

"The thundering of an avalanche or snow slide not infrequently breaks the solemn quiet of the nights, and adds more boulders to the streams.

"Geologically, these mountains are quite young. From their depths come occasional signs of the fact they are still growing, in the form of local earthquakes."

Alaska Garnet Find Reported

FAIRBANKS, Alaska (AP)—A huge dyke apparently containing millions of garnets, semi-precious stones widely sold in the jewelry trade, has been located near here by Louis D. Colbert. His discovery was made by tracing "float," or broken-off bits of mineral, washed down in a creek bed. In the deposit proper, Colbert reported, the stones often appeared in clusters.

Exhibition of animals in realistic settings

Have you ever strolled along a forest trail absorbed in the sounds around you, and suddenly come face to face with a huge bear? Or hiked among glaciated mountain crags far above timber line and chanced to see a herd of nimble bighorn grazing on the steep slopes?

If you have had such adventures you can imagine in a measure the thrill in store for those who will be on hand for the opening of the new Hall of North American Mammals on April 9, at the American Museum of Natural History. After six years of construction and preparation, the hall will open to show the first completed habitat groups—10 in number—of what is eventually expected to be the world's finest representation of North American animals ever housed in one exhibition building.

The new hall might be described as a panorama of wildlife throughout the entire North American continent, extending from Ellesmere Land, near the North Pole, to Mexico; and from New York State to the west coast of Alaska. Specimens are mounted in realistic life settings of their native plains, forests, swamps, mountains and deserts—a vista of North America's natural wonders and tremendous space—re-created by Museum natural scientists and artists as an enduring heritage and inspiration to the American people.

On entering the Museum through the east end the visitor is confronted with a large Alaskan brown bear group at the opposite side. These animals—some weighing 1,400 pounds and eight feet tall—are the largest carnivorous land animals in existence. Their large size is thought to be related to the abundant and rich food supply including hordes of salmon found in the vicinity of the Alaskan Peninsula. They are most active in daytime and are usually solitary except when drawn to a common source of food. The cubs remain with the mother for almost two years and apparently take six or seven years to reach full size and weight.

Peary Collected Muskox

The animals in the muskox groups are especially notable from the fact that Admiral Peary collected them for the Museum on one of his polar expeditions in 1908. These heavily furred animals inhabit the bleak, icy wastes of Ellesmere Land, an island mass only about 700 miles south of the North Pole, and about 20 miles west of northern Greenland.

This strange animal is a true remnant of the Ice Age. In the Pleistocene Epoch which began about 1,500,000 years ago, the muskox wandered over much of the Old World and almost to the Mexican boundary in the New



↓ Caribou, collected by the Lloyd-Smith Alaska Expedition and mounted by Robert H. Rockwell



American Museum of Natural History

Unusual American Fauna to Feature New York Exhibit

Outstanding examples among 10 mammal habitat groups to be displayed at the new Hall of North American Mammals to be opened at the American Museum of Natural History in New York on April 9 are shown above. Upper left: Alaskan brown bear, which species is the largest carnivorous land mammal in existence. Upper right: The shaggy muskox of the arctic tundra which is a remnant of great herds that roamed over much of the earth during the Ice Age.

World, but it vanished completely in Europe and Asia before historic times. It is a member of the great family of oxen closely related to the Himalayan takin, and the only representative adapted to a life

on the arctic tundra.

A large bull weighs about 600 pounds, although much greater weights have been recorded. When attacked, the herd, numbering 10 to 30 individuals, form a solid

phalanx to their enemies, the wolves, but no protection against men with guns. Recently a successful attempt has been made to reintroduce muskoxen to the barren grounds of Alaska.

Awakening in Canada's Arctic

A Quiet, Professional Account of a Strategic Region

CANADA MOVES NORTH

By Richard Finnie. . . . 227
pp. . . . New York: The Macmillan Company. . . . \$3.50.

Reviewed by
EARL PARKER HANSON

Who has made exploratory research in Iceland and sub-Arctic Canada; author of "Stefansson, Prophet of the North."

THE map facing page eighty-six gives some indication of this book's present-day importance. It is a simple polar projection sketch map of the Northern Hemisphere, with the North Pole in the center, and the continents grouped around the Polar Sea. It shows one very significant geographical arrangement: China, the Soviet Union, Canada, the United States—the United Nations in general—laid out in one tremendous, wide swath across the world, with Japan crowded off on one side and Germany and Italy on the other. But that alignment of the United Nations is a wide, beautiful and powerful single swath only if one condition holds good: if the Arctic in general, and the Polar Sea in particular, dominated on the American side by the Canadian Northwest territories, form a connecting link between nations, a gateway rather than a barrier. Far too many of us, accustomed to the press agents' point of view on the heroics of exploration, regard it definitely as a barrier. That is bad. Captain Ashley McKinley, of Byrd South Pole fame, was recently quoted as saying that the Polar Sea is the world's only sea of which the United Nations still have complete control, and it's too bad that no nation except the Soviet Union is doing anything about using it. But using it demands, first of all, sweeping away a whole vast, mountainous continent of popular and professional misconception about the Far North.

In this sure, quiet and admirably professional piece of work, Richard Finnie goes a long way toward sweeping away those misconceptions as far as the Canadian Arctic is concerned. He does almost no urging or special pleading. "Canada," he says, "moves north. Canada must move north." He records that movement, in which he has himself played a large part, not as a romantic journalist but as a student

and a professional man who knows and loves the country of which he writes, feels at home there and has no special urge to push himself into the foreground as a romantic young man. Some years ago he published his "Lure of the North," which was a fine human-interest account of the impinging of civilization's vanguard on the Eskimos; now he gives us, from many points of vantage, the dynamics of that vanguard's northward march. And make no romantic mistakes about this thing: the sweep of civilization into any frontier region, no matter how inspiring it may be from the long-range point of view, is not always pretty when seen close at hand. Mr. Finnie knows that, being one of those rare writers who can combine the long view with the short, and so reconcile the tawdry with the majestic.

The book starts with a chapter on Geography, in which the Arctic section of the public school geography still in use in Ontario in 1941 is taken apart and shown to be a collection of libelous (to the Arctic) misstatements. Mr. Finnie worked and traveled for years in the north, and had himself a wonderful time there. Had it been as pictured in that geography he would at the very best have been a great and heroic martyr, and in all probability a corpse.

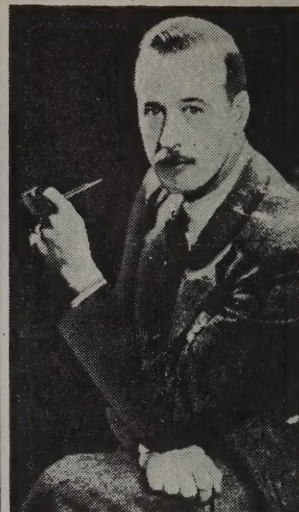
From geography he goes on to a fascinating but highly condensed chapter on exploration. The early Arctic explorers, looking for commercial sea routes and trade, were on the whole, kindly to the North; but then sporting aims replaced commercial ones, and the region became grim and forbidding. The white man's burden was too much to carry. The men of the Franklin expedition, refusing to use the Eskimos as guides and valuable mentors, "gallantly suffered in the best English tradition, wearing their naval uniforms and carrying swords, and finally eating one another, perhaps on silver plate." John Rae was the first to prove that explorers could live off the land as the Eskimos obviously had done for millennia. But Rae was not popular because what he did wasn't cricket; he evaded the hazards of the game "through the vulgar subterfuge of going native." All this, of course, leads up to Stefansson, and Finnie is obviously under his influence—precisely as every engineer is under the influence of Newton and every astronomer under that of Galileo. There is no escaping Stefansson if one has a realistic attitude toward

the North; he and the airplane were the two great keys that opened the Arctic to civilization, and that made Mr. Finnie's present book possible.

The fur trade, which has a chapter, was the one commercial activity that first brought white men north in small numbers, and kept them there for centuries. But the old frontier exploitation methods were wasteful and must soon give way to new and more scientific methods. Missions come in for a chapter—not very complimentary. They have their value, but they confuse the Eskimos, make religious conversion their sole aim, and teach the natives a lot of things that they are better off without. Richard Finnie has studied the effects of overzealous conversion from the point of view of an ethnologist. As a true friend of the Eskimos he is unhappy about them. Secular schools, fostered by the government, would be better. But Mr. Finnie does not slobber broad-mindedly and sentimentally about the Little Brown Brother. The burden of all his talk about the Eskimos, more fully developed in the chapter on civilization, is that we should accept them as equals. There is not a single thing that white men do in the Arctic, or may do in the future, that Eskimos can't do as well or better, given the right training and a chance. In the Soviet Union they make excellent airplane pilots, mechanics and university graduates. Why degrade them in Canada by either exploiting or patronizing them—even with kindly intentions?

So the book goes, telling what goes on in the Northwest territories in administration, in transportation, where the airplane has wrought a revolution, in mining, in agriculture and a lot of other things. Towns have sprung up far north of the Arctic Circle, fortunes are being made, the radio, the only unmixed blessing that civilization has brought, has bound it all together and to the rest of the world. We are witnessing in Mr. Finnie's book not a mighty northward push but the beginnings of something that might turn into such a push, and that is a manifestation, with all its obvious faults, of something powerful and stirring in the world today. We are witnessing in Arctic Canada today a physical symptom of something parallel to that great reorientation in geographical thought that led to the age of discovery during the last renaissance.

Mr. Finnie even has a chapter on



Richard Finnie

tourist traffic in the Arctic. That traffic will be heavy before long, and the attractions warrant it. It is reasonably heavy already, though at present the tourists generally call themselves explorers and write "authoritative, first-hand" books that had better remain unwritten. Richard Finnie is perhaps at his best in the chapter on literature and art. That is extremely important, because we get most of our ideas about the region from books, and are only too often misled by the rave reviews of critics who may know writing but know nothing at all about the Arctic. There aren't many really reliable books about the Arctic and the Eskimos, and Finnie lists those.

Mr. Finnie's book has so solid a professional point of view that its full value will probably not be grasped at first. Perhaps it will only be after our Navy begins to use the Northwest Passage as the Russians now use the Northeast Passage, and we are so pulled forcibly nearer to the friendly Arctic in our thinking, that its sales and popularity will begin to gather momentum. It is not written to debunk anything for the sake of the debunking, or to entertain a lot of intellectuals with abstract ideas. It is a simple statement of a multitude of facts that need stating at present, from the point of view of a man who long ago won his right to state them authoritatively. He was born in Dawson; his father was long Director of Canada's Northwest Territories; he himself worked there (and I mean "worked," not just "went") on no fewer than eight expeditions. One more well written and sincere human document has been added to that very small list of books that we can depend on to give us a true, and bright, and hopeful picture of the Arctic.

STEFANSSON: PROPHET OF THE NORTH

By Earl P. Hanson. Illustrated with photographs. . . . 242 pp. . . . New York: Harper and Brothers. . . . \$2.50.

by MAY LAMBERTON BECKER
New York Herald Tribune

EARL HANSON admits in an ingratiating preface that he writes his book out of gratitude that goes twenty years back. It was with the same emotion that I read it. One must be grateful for the gift of a continent, and until the day I opened "The Friendly Arctic"—largely because New York was at the height of a heat wave—that part of the world had been a white space on the top of the map, a cap of silence on the globe. On that day it became no longer *terra incognita*, but a place that somebody had actually enjoyed.

With such an impetus Mr. Hanson's biography goes far, fueled by knowledge of the scene and family background and personal sympathy with a dynamic fighter. Boys and girls who take an interest in adventure will gladly keep up with it, but so will their elders. Stefansson's parents came from Iceland in 1876 with their four children and lost two of them to the more rigorous climate of northern Canada. When "Villi" was born food was so short that he was fed on fish gruel instead of milk; it set up what I suppose would now be an allergy, so that fish gagged him for years—until it was fish or die, and he found that to eat it he would have to like it first. His pioneer youth and stormy education seem further back in history

Trees Tell Alaska's Past

Tucson, Ariz.

Thanks to techniques of natural science that originated in Arizona, Alaskans know considerable about the climate of their territory, back almost to 1500. They also know when old Eskimo settlements, abandoned centuries ago, were built.

It is done with tree rings.

"Dendrochronology in Northern Alaska," just published as a joint bulletin by the University of Arizona and University of Alaska, summarizes in 108 pages the results of three years of field work. The author, J. L. Giddings, Jr., spent his summers in the north for the University of Alaska and American Museum of Natural history. His winters he spent at Tucson with Dr. Andrew E. Douglas, who may not have invented dendrochronology but developed methods of dating ancient ruins and charting climatic cycles by examination of growth rings in trees.

Mr. Giddings accumulated 3,000 samples of Alaskan wood, many being logs from Pleistocene silt beds near Fairbanks that are being mined for placer gold. He does not know just when those logs grew, but hopes to connect their record

eventually with the record to be read in the annual growth rings of living trees. It is a matter of patient search and painstaking comparison.

In the American Southwest, where Dr. Douglas has done most of his work, thickness of growth rings is correlated with rainfall. In Alaska, it seems to correlate with mean June temperatures.

First objective of the Giddings studies, which are scarcely begun, is to "clear up phases of climatic relationship and lead toward long-range forecasting of climatic relationship and lead toward long-range forecasting of climatic trends." He also wants to know more about variations and permanent changes in ocean currents, which evidently were not always the same in Alaskan waters as they are today. For the lay reader, the most interesting sections of his report are those dealing with archeology.

He dug into scores of Eskimo sites on the Diomed Islands, King Island, St. Lawrence Island; along the Kobuk, Squirrel, Noatak and other rivers. His objective was wood samples, but he found much material more precious to the archeologist.

than the life of one so vigorous today.

Life with the Eskimos takes much of the book, with no famous feature lost—all-meat, no-salt diet, clothes that could be eaten in emergency. Stefansson's controversies rightly come in, too, including the famous one with Amundsen. The book is, honest and stimulating, with many photographs, and, though its subject is noted for disrespect for heroes, this is a hero story.

Finds City Life Different

By the Associated Press.

SEATTLE.—Back home any passing dog sled driver would have been glad to have given him a lift. So Ulak Hope, an Eskimo who is a private in the Army, didn't hesitate to thumb a ride on his first visit outside Alaska.

Ulak climbed out of the car at his hotel, thanked the driver, started to depart.

"Hey, wait!" yelled the driver. "Where's my money?"

He had flagged a taxicab.

SYMPATHY IN SUMMER LOST ON POLAR BEARS

They Have Hot Days, Too, in
Native Habitat

WASHINGTON (Science Service).—Don't pity the poor polar bears in your city zoo when the mercury is bubbling in its tube and threatening to put up a creditable imitation of Old Faithful geyser. Polar bears don't mind the heat as much as you think they do. They aren't altogether unused to it, for the Arctic gets hot days in midsummer, even though they may not be quite such sizzlers as the Old Home Town can boast of.

Weather Bureau records here show real Summer temperatures for three seacoast towns near or above the Arctic Circle in Alaska. Highest on record at Nome, facing Bering Strait just below the circle, is 84 degrees Fahrenheit, in a period of thirty-two years. A little to the north and just above the circle is Kotzebue—a fourteen-year maximum is given as 81 degrees. At Point Barrow, northernmost spot on the North American mainland, a twenty-five-year record shows 78 degrees as the highest.

Admittedly, this is nothing for the Chambers of Commerce of those places to get "all het up" about; nevertheless, they are real Summer temperatures. They would be considered pretty high, for instance, in London. Reason for such high temperatures at such high latitudes, of course, is the continuous sunshine. When the sun doesn't set at all for weeks it can get pretty warm, even way up north.

Inland it does even better than that. Temperatures of 100 degrees have been reported from interior valleys in Alaska; but they do not count here, for polar bears never go inland. They stick around the beaches where they can get seals and fish and an occasional feast of stranded whale.

Of course, if the polar bear doesn't like his 80-degree day at the seashore he can always jump right in where it's cool, just as he jumps into his cool pool in the zoo's bear pit. All bears can swim, but the polar bear is the "swimmin'est" of them all. Despite his great size he can chase and catch a salmon under water as easily as an otter.

Like all bears, the polar bear eats anything. Force of circumstances, however, compel a diet more predominantly of meat and fish than other bears ordinarily choose. The berries, fleshy roots and succulent grubs in which other bears delight are available to him only during the brief Arctic Summer. And the greatest bear treat of all, the finding of a honey tree, is entirely out of his ken. There can't be any bee trees in his habitat, because there aren't any trees at all.

Planes Carry Alaskan Cattle

Because of lack of roads and railroads, Alaskans ship even cattle by airplanes, reports The Associated Press.

A Journey to a Rarely Visited Land

NEEDLE TO THE NORTH. By Arthur C. Twomey, in collaboration with Nigel Herrick. With photographs and maps. 360 pp. Boston: Houghton Mifflin Company. \$3.50.

THE title page explains that this book is "the story of an expedition to Ungava and the Belcher Islands"; and it is one of the expedition's factors of interest that for ninety-nine readers out of a hundred the explanation itself will have to be explained. These virtually unheard-of places are on, and in, Hudson Bay. Ungava is a huge unorganized district on the Labrador Peninsula: swept by terrible winds, treeless, isolated, ruled by "that pitiless triumvirate, Scarcity, Hazard and Solitude," with not a single white man's village on its thousand-mile length of coast. The Belcher

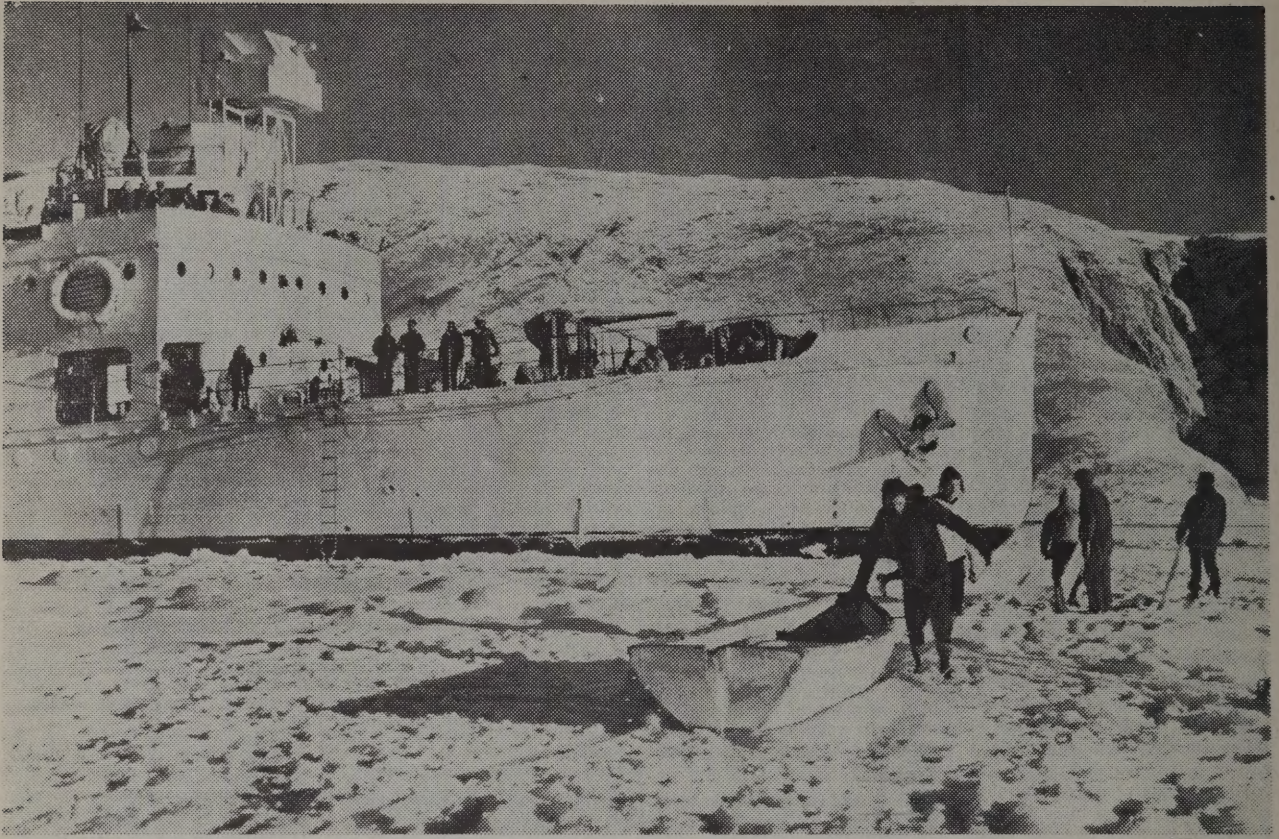
Islands lie sixty miles to the west, in the bay, and they were "discovered" in every true sense by Robert Flaherty in 1914 (apparently the first white man ever to set foot there) and first reliably mapped from aerial photographs made by the Canadian Government in 1933. In 1938, when Arthur C. Twomey of the Carnegie Museum made the visit which this book records, only one white man had ever made his home on the Belcher Islands; this man, Bob Cruickshank, Hudson's Bay Company representative, is, the author adds, the hero of the second half of the book.

Mr. Twomey is an ornithologist, and he was looking for birds. The Ungava part of the expedition, however, was in quest of something more mysterious. With J. K. Doult, curator of

mammalogy at the Carnegie Museum, he went in search of the unknown inland seal which had been almost like a legend in that strange wilderness. Before their purpose was successfully fulfilled they had not only lived through adventures but had seen human drama unfolding in the coast Eskimo's daring journey into the Indians' hinterland.

The Belcher Islands were even stranger, and their primitive peoples even more interesting. Although they excelled in the Eskimos' too facile adaptability to new ways ("before you would dare assume that he has learned to use it, the hunter of the Belchers will make your mechanical gadget an integral part of his life"), these people are really primitive, both in their independence and their native skills.

THE U. S. COAST GUARD IN AN ICY BERTH



Members of the Greenland Patrol going ashore from their vessel



The harbor of Sukkertoppen on the west coast of Greenland